COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

C. E. LESHER, Editor

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What the Anthracite Miner Wants

MATTERS at issue between the operators and miners in the anthracite region are now quite clearly defined. Arbitration of the score of demands of the miners with respect to wages and working conditions has been urged by the operators and as flatly refused by the miners.

What the miners are now demanding as a condition to returning to work is that the operators enter with them into an illegal conspiracy. They say almost in so many words:

Anthracite enjoys the position of a natural monopoly. The public must have it and will have to pay whatever price we put on it. Give us, the miners, complete union recognition—which being interpreted, is the check-off—and thus complete our monopoly in labor. Adjust our wages up and not down. The four factors which you, the operators, set forth in your memorandum of May 10 as properly controlling wages—namely, purchasing power of the dollar, opportunity for employment, wages in comparable industries and for comparable lines of endeavor, and the general economic condition, are not acceptable to us, the miners. If we were to concede these things it would be to admit that our labor is as other labor in the United States, entitled to wages and earning compatible with its worth and in line with what the industry and the public can afford to pay for it. On the contrary, we are anxious to be real coal barons. Please do not stand in our way when we are trying to set up anthracite mine labor as a highly preferred class. Join with us in this brazen and unholy alliance and we will join with you in lowering the price of coal to the consumer by taking $5 off the freight rate (already less than $5) and in attacking the profits of middlemen and retailers.

Repudiation by the operators of this proposal has, of course, been prompt and emphatic. To participate in such a conspiracy would bring down the wrath of the public quicker than any other method of attack on its pocketbook. The miners must realize that they have no case, hence their refusal to submit it to fair arbitration. We opposed such a step when proposed by others in March and April, because we believed then and believe now that arbitration is the last resort. The time has come when, collective bargaining having failed, the third party should be brought in.

Not Only in England But Here Also

AN ENGLISH author, Hilaire Belloc, has written a book, "The Mercy of Allah," which tells of a millionaire merchant, Mahmoud, whom he represents as living in Bagdad in the days of Abd-er-Rahman. He is recorded in the story as a traveler through many countries, and in one of these was a law "compelling all men under pain of torture to reveal their revenues from farming or any other reputable trade, but taking no account of gambling or juggling, as being unimportant and too difficult to follow."

In the United States, to cite a single instance out of many, the General Motors Corporation stock went in recent years to 860. Ten shares of a newly issued common stock were exchanged for a single certificate. Not a word was said in Congress, not a state Legislature protested; even Untermyer was silent. It was not as it were "a reputable trade"; it was regarded, as "gambling or juggling, as being unimportant and too difficult to follow." Had it been coal mining, railroading or the public utilities, the Congress, the Legislature, Untermyer and the like would have called loudly for investigation. Mahmoud is right. We have here a natural but a most vicious discrimination against the useful in favor of the valueless or less valuable.

The Vanity of Information

HAIL a stranger for a match or other small favor and he may be disgruntled. But ask his opinion on some matter, large or small, and he swells with pride and gives fully of his time. This is what Carl Snyder, of the Federal Reserve Bank, in a talk to a group of statisticians and economists called the vanity of information. He was discoursing on the plethora of statistical prophecy now being handed out to the business executive, most of which is pure "bunk," and, as someone on that occasion remarked, a great deal of which is free and even forced on a skeptical public.

The air is full of rumors of an impending settlement of the strike in the soft-coal fields and of early action from Washington with respect to the hard-coal strike. These reports are free; they are given freely back and forth in the trade; they constitue the coal man's talk.

Tips—real inside dope—go like this: A side-liner informed us that the brother of a friend of his had just returned from the coal fields, where he had talked—no, not to the operators but the miners—and was informed they had decided not to return to work until November. Another chap, bursting with dope on the "situation" has already had the operators and miners' officials in secret conclave, and would have the mines in full blast before the end of June.

Prophecy is rife about the date of strike termination, the extent of car shortage that will or will not follow and how good or how poor the market will be when winter comes. But if you look and listen carefully, you will not get any of this stuff from those who are on the "know". The best of them are able only to guess, and are not vain with their information.

Where will it end? A few pages of speculation would be easy to write and profitless to read. We may at times resort to "sibylline" statistics (as Joe Pogue calls them), but guessing a date for the meeting of an irresistible body with an immovable one is too much for us.

The Life of Coal Reserves

COAL land under development, land held for future development and just plain land underlaid with coal are three separate forms of reserves. In a recent report on investment and profit in the bituminous-coal industry the Federal Trade Commission devotes some space to a discussion of excess reserves of coal-bearing land held by producing companies. It is pointed out that of 1,126 reports examined in this regard, there were noted 7 indicating reserves sufficient for an average of 108 years at their rates of production in 1918. After allowing each company tonnage for development and for 30 years' production at that rate, it was found for the 7 companies that the range of life over the 30 years was from 6 to 226 years. The investment value of the average holdings in excess of the assumed proper 30 years was in the aggregate $22,000,000. The commission notes: "In the case of these companies, therefore, there is not only a considerable addition to cost resulting from taxes payable on these excess reserves, but if they were to earn a return at the rate of 6 per cent on this $22,000,000 there would be added to the price of their present output of coal, $1,320,000, or about 20c. per ton attributable to such excess reserves."

The commission warns that these 7 companies are not to be taken as typical, but rather as exceptional, and says: "A large majority of the bituminous coal-mining companies undoubtedly have no excess reserves." It thinks, however, that were proper allowance made for holdings in excess of those necessary for 30 years' operation, the limit it presumably sets, the average investment per ton of output reported, $3.12, would be reduced to at least $2.80.

Census schedules for 1919 contained inquiries as to the number of acres of coal land "operated," "controlled," "owned" and "leased." With respect to the information received from the companies the Census has this to say:

> The inquiry on land tenure was confined to land pertaining to the mining operations covered by the report. In many of these, however, land held in reserve for future development and for speculative or other purposes not pertaining to mining was included in the returns, and also a large number of more or less unsatisfactory estimates were included. Nevertheless, it is believed that the data presented reflect fairly the conditions as to land tenure in the mining industries, and correctly show the order of magnitude of land holdings pertaining to mining enterprises.

The Census thus reports the number of coal mines in each state, the total production and the acreage. Data published by the Geological Survey in the coal report for 1917 give the thickness of coal mined, from which may be calculated the weighted averages for the states. Assume a figure for average recovery—say 1,000 net tons per acre-foot—and we have the essential factors for arriving at average reserves in terms of years of life of the average mine.

For instance, 260 mines in Alabama produced 15,411,000 tons of coal in 1919. There were 653,793 acres of coal land "operated" in connection with these mines. The average production per mine was 59,000 tons, the average acreage, 2,500. The average thickness of coal mined in that state is 4.7 ft. (1917), and at 1,000 tons recovery per acre-foot the exhaustion of each acre represented 4,700 tons of reserve. The average mine, therefore, exhausted 12.5 acres of coal land per year at the 1919 rate of production, and the average of 2,500 acres will provide coal for these mines for 200 years. Calculated for the three years ended with 1920, which represented a higher rate of depletion, the average years of life were 177.

In the following table these calculations are shown for the Appalachian region (including all of Kentucky):

	Acres Operated per Mine	Annual Tonnage per Mine	Average Thickness of Coal Mined (Feet)	Acres Mined Out per Year, 1919	Average Life of Reserves in Years	
					1919 Rate	1918-1920 Rate
Pennsylvania	577	58,000	5.6	10.3	56	50
Ohio	491	39,100	5.2	7.5	65	58
Maryland	580	31,800	6.0	5.3	110	97
West Virginia	1,410	60,000	5.7	10.5	134	119
Virginia	3,380	79,000	5.8	13.6	248	220
Kentucky	985	39,400	5.0	7.8	126	112
Tennessee	2,050	36,000	3.9	9.2	223	197
Alabama	2,500	59,000	4.7	12.5	200	177
Appalachian Region	960	53,000	5.5	9.6	100	88

The first thing that strikes one in this tabulation is the high average—88 years—for the Appalachian region, as compared with what might have been expected from the report of the Federal Trade Commission. In detail these figures show a variation in reserve tonnage per mine from 50 years in Pennsylvania to 220 years in Virginia. In fact Virginia tops the list in average tonnage output per mine, in thickness of coal (save Maryland, a small producer), in yearly exhaustion per mine per year and in reserves per mine.

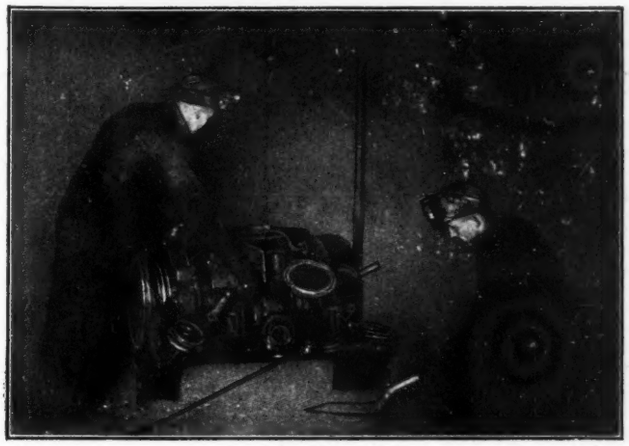
The three Northern states—Pennsylvania, Ohio and Maryland—have the lowest average reserves, and the Southern states the highest. In explanation of this it may be said that in Virginia, Kentucky, Alabama and Tennessee a larger proportion of the acreage and of the annual output is in a few hands than in the other states. Ownership in eastern Kentucky, Alabama and Virginia is particularly concentrated.

Averages are at best uncertain signposts, and particularly so in this instance because there are included two dissimilar things, commercial and non-commercial mines. The average reserves indicated, whether correct or not, are inflated by the very large land holdings of mining companies owned by various steel interests, railroads and certain other owner-consumer mine operators. The cost of carrying reserves borne by steel companies, byproduct coke interests and railroads have no bearing on the going cost of coal on the commercial market. And for many of the larger land-holding commercial coal producers the original cost was so low that the market in times of lack of demand can be and is set at a point that forces those less fortunate companies with higher interest charges to forego that item of cost if they are to share in the going business. Here again competition works in favor of the consumer and discounts the cost of excess reserves. Another factor certain to reduce these estimates is that the thickest coals are now being worked and in the future acreage will be exhausted more rapidly with the same output.

In its report the Trade Commission says that land under development and land held for future use should be carried separately. This may be desirable from the standpoint of the student, but it would have no effect on the cost of coal. Someone at some time must pay the capital carrying charge on these lands, once they have passed from the "farmer" status of simply land underlaid with coal to "coal land" recognized and taxed by the commonwealth. If that cost does not appear on the books of the producing company today, it must assuredly appear there later, else the holder will lose his investment. The cost of carrying excess acreage is real and cannot be postponed indefinitely.

Relation Connected Loads Should Bear to Generator Capacity*

BY CARL LEE†
Chicago, Ill.



Courtesy the Goodman Mfg. Co.

Fans Have Low Demand Factor and High Power Factor—Pumps Even in Illinois Have Low Demand Rate—Locomotives on a Run May Use Less Than Forty Per Cent of Their Full Duty

DETERMINATIONS as to the size of a power plant, the capacity of its generators, the size of the cables leading to the mine bottom and to the various sections of a mine are often made without due consideration of the relation between the connected load and the power that will be required under working conditions. The two principal terms used in calculations of the foregoing are load factor and demand factor. In order that the two may not be confused the definitions of each may be given with advantage:

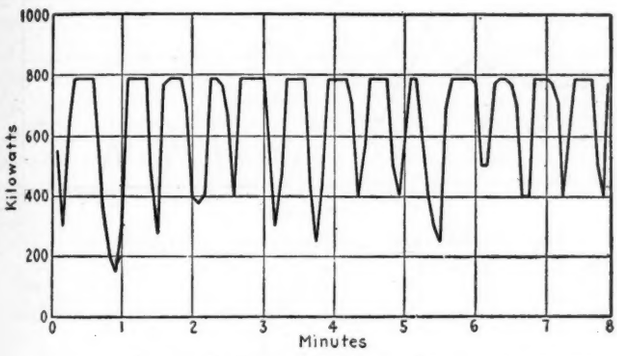


FIG. 1. TYPICAL LOAD CURVE ON 950-HP. MOTOR OF FLYWHEEL SET OF 1,300-HP. HOIST

For the motor the demand factor is momentarily 112 per cent and for a 5-minute period 84 per cent. The output of the hoist could be increased by decreasing the caging time or increasing the speed of the hoist or both.

Demand Factor: The ratio of the maximum demand of any system or part of a system to the total connected load of the system or of the part of the system under consideration.

Load Factor: The ratio of the average power to the maximum power during a certain period of time.

The two are closely related and if the load factor of each separate motor is known it is much easier to estimate the demand factor for a large group of motors.

The principal applications of electric power to bituminous coal mines are as follows: (1) Mine ventilating fans, (2) electric hoists, (3) crushers and washers, (4) shop and tipple machinery, (5) pumps and booster fans, (6) mining machines, (7) locomotives. They will be considered in the order named.

Mine Fans.—Modern fans have a mechanical efficiency ranging from 45 to 65 per cent from driving shaft to air delivered. The volume of air required depends on the tonnage of the mine and the number of splits. The pressure depends on the length of airways, their size and condition and also on the number of splits. Knowing the volume and pressure necessary and the efficiency of the fan it is easy to determine the size of motor required. In order to allow for the future extension of the mine it is always well to provide a motor that is somewhat over-large at the time of installation; then as the mine develops it is possible to speed up the fan, with, of course, an increase in the power consumed. The load factor of a fan usually is unity and the demand factor is somewhere between 60 and 110 per cent, depending on the allowance made for the expansion of the mine.

Electric Hoists.—The factors for electric-hoist motors vary with the manner of their application and their values in any case should be estimated by competent engineers. In a well-designed hoist of the Ilgner type the five-minute demand factor is approximately unity,

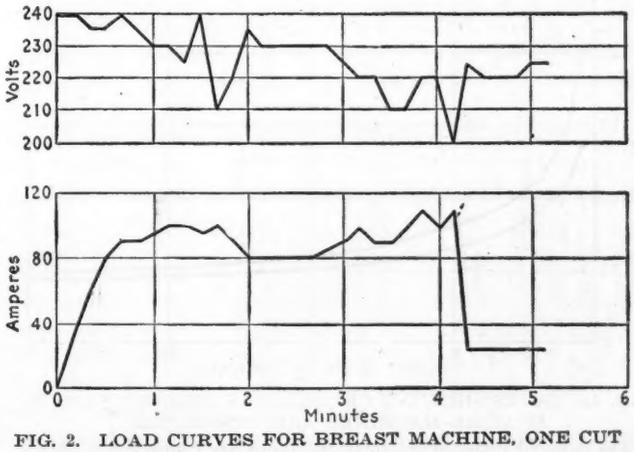


FIG. 2. LOAD CURVES FOR BREAST MACHINE, ONE CUT

The upper curve shows the voltage and the lower curve the amperage of the current. The breast machine is so operated that continuous load is not ordinarily on it for as much as five minutes.

*Article entitled "Demand Factor of Coal-Mining Loads," read before a joint meeting of the Chicago Section of the American Institute of Electrical Engineers, the Electrical Section of the Western Society of Engineers, the Chicago Section of the American Institute of Mining Engineers and the Chicago Section of the Association of Iron and Steel Electrical Engineers.

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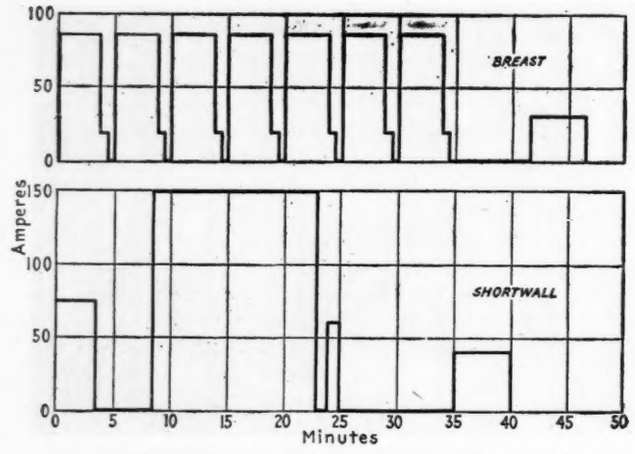


FIG. 3. COMPARISON OF LOAD CURVES FOR BREAST AND SHORTWALL MINING MACHINES

These idealized graphs represent the cutting of one 24-ft. room. Each breast cut takes an equal quantity of power while going forward, less power when backing out and no power while being pried over for the next cut. The shortwall machine cuts across the room without any delay and the graph is less complicated.

for the motor driving the flywheel set is just fully loaded when operating at the rated capacity of the hoist. The momentary demand factor, of course, is higher.

In Fig. 1 is shown a load curve on a 950-hp. motor of a flywheel set driving a 1,300-hp. direct-current hoist. Here the momentary demand factor is 112 per cent, and the five-minute demand factor is 84 per cent. This indicates that the output of the hoist could be increased by decreasing the caging time or increasing the speed of the hoist, or both. The average efficiency of four Ilgner hoists of 675 to 1,300 hp. in operation for several years is 45 to 48 per cent. Thus the kw.-hr. input and demand factor for a properly designed hoist can be easily predetermined.

Crushers and Washers.—This is more or less special application but the same general remarks would hold as are noted for the next class.

Shop and Tipple Machinery.—The selection of motors to drive ordinary tipple machinery is very generally understood and the demand factor usually will run high, as there are many times when the rate of output of coal is such that all the equipment is loaded. In such a case the combined demand factor possibly

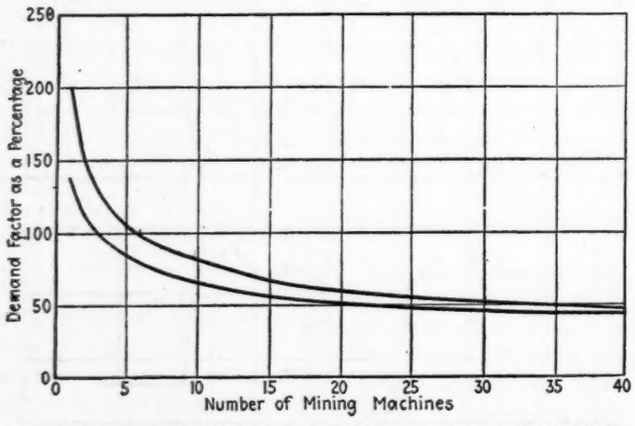


FIG. 4. CURVES SHOWING DECREASE IN DEMAND FACTOR AS MORE MACHINES ARE CONNECTED

The demand factor when forty machines are connected is about 45. It has almost reached its low limit when that number of machines is connected. This curve is made by taking the curve for the shortwall machine and superimposing it a number of times on itself so as to obtain the lowest peaks.

reaches 90 per cent. The total load rarely exceeds 150 hp., so in the average mine its determination is not an important electrical problem.

Pumps and Booster Fans.—Pump motors usually are selected so as to be of ample capacity. This is done so as to allow for the difference in load either at the original location or at the one to which the motor at some time may be moved.

In the coal mines of the Illinois field pump loads are not ordinarily heavy. In one mine with fourteen motors totaling 225 hp. connected to pumps, the demand factor is 44.5 per cent. At another with seven motors totaling 65 hp. connected to pumps the demand factor is 54 per cent.

Mining Machines.—The manufacturers of mining machines have learned through years of experience what size of motor should be installed in any type of coal-cutting machine. The motors are rated on a one-hour basis, as the work is intermittent. The motors now installed on mining machines average from 22 to 25 hp. for breast machines and 30 to 50 hp. for shortwall machines.

Where the coal to be cut is extremely hard a single machine of either type may have a five-minute demand

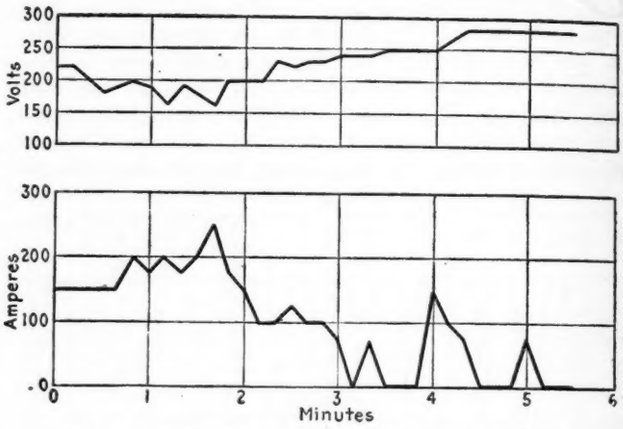


FIG. 5. TEST ON A SEVEN-TON LOCOMOTIVE

This locomotive hauled 19.8 tons of coal and 9 tons of cars a distance of 3,540 ft. The load factor of the run is 38 per cent. The return trip with the empties requires about three-fourths of the time and two-fifths the power. The whole load factor for one round trip does not exceed 25 per cent of capacity load.

factor of 150 per cent. In easy cutting the demand factor of the same machine might not exceed 75 per cent of its rating.

An actual test on a breast mining machine for one cut is shown in Fig. 2. The operation of a breast machine is such that continuous load on the motor will not ordinarily exceed five minutes. The shortwall machine is designed to cut across a short face, such as the face of a room 18 to 35 ft. wide or an entry 9 to 18 ft. wide, at the rate of 12 to 24 in. per minute.

Fig. 3 shows a comparison of the characteristic loads of the two types of machines. The curves are not actual but represent the average results of a number of tests on such machines. The presence of various forms of impurities known to the miner as sulphur balls, black jack, slate or clay increase the load on the mining machine. This is a natural condition which usually is unavoidable.

Worn gears, cutter heads, guides and chains increase the load. The remedy is obvious. Lack of oil and dull cutter bits also increase the load rapidly. These are under the direct control of the machine runner. In some cases a set of bits may last a day but in worse

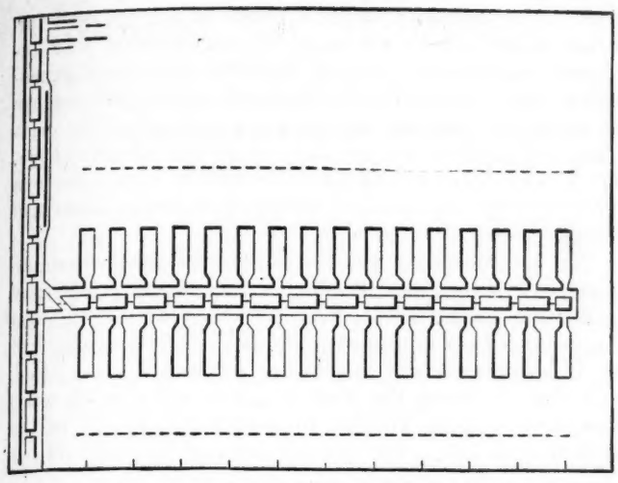


FIG. 6. PAIR OF ENTRIES WITH ROOMS FROM EACH
A typical territory served by a single gathering locomotive. As the runs into the rooms for coal are short, the 5-minute peaks are not as high as those with the main-haulage locomotive.

conditions six to twelve sets may be required. The number of bits used indicates the hardness of cutting and may be used as a guide in estimating the demand factor of any machine.

With Many Machines Demand Is Made Regular

By taking the curve for the shortwall machine and superimposing it a number of times on itself so as to obtain the lowest peaks the lower curve shown on Fig. 4 is derived. Next, assuming a momentary demand factor of 200 per cent load for one machine and the maximum continuous capacity, or about 50 per cent of the one-hour capacity, of a total of thirty machines, the upper curve is obtained. It is evident that for the assumed conditions the average actually obtained lies between the two curves. For easier cutting or less regular work done than that assumed for the curve of Fig. 3 both the curves are lower.

Thus it appears that for a large number of machines the demand factor for the group approaches, but never reaches, the load factor of one machine over the same period. Therefore it is necessary to know how much each individual machine works each day before the demand factor for a group can be estimated.

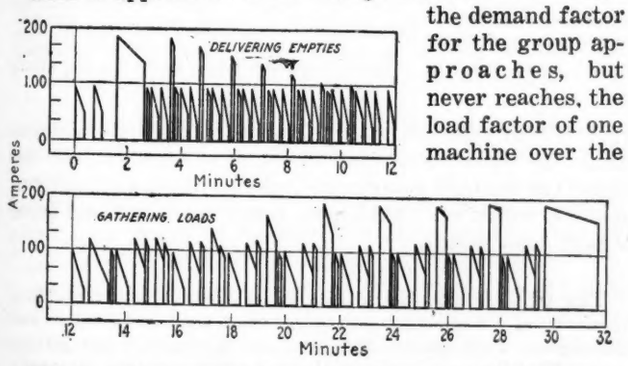


FIG. 7. LOAD CURVE FOR GATHERING LOCOMOTIVE
One round trip in territory like that in Fig. 6, hauling eight cars each way.

Locomotives.—The highest demand factor of a locomotive properly operated usually is predetermined by the manufacturers. The common practice is to equip the locomotive with 10 hp. per ton of weight. The one-hour current rating is about 90 per cent of that required to slip the wheels, thus the demand factor for a single locomotive is 110 per cent. The eight-hour rating is only 45 to 55 per cent of the one-hour rating, so that the load factor does not exceed 40 to 50 per cent.

The characteristics of coal-mine service of locomotives are extremely variable. A number of factors enter into their consideration, the principal ones being: Length of haul, ruling grades, short grades, condition of track and cars, voltage regulation on trolley, system of haulage, required output and concentration of coal.

A test on a haulage locomotive is shown in Fig. 5. The load factor for the run is 38 per cent. The return trip with the empties requires about three-fourths the time and two-fifths the power, so that including the time waiting on the parting and on the bottom the load factor does not exceed 25 per cent for one round trip. This, however, is too low for some installations where the run is longer and where the grades are easy, in which case large trips are hauled, giving a steady load.

Gathering locomotives have about the same momentary demand factor as haulage locomotives, but only in exceptional cases have they as high a five-minute demand factor. In Fig. 6 is shown a pair of entries with rooms being worked on both. The coal from this territory would be gathered by one locomotive.

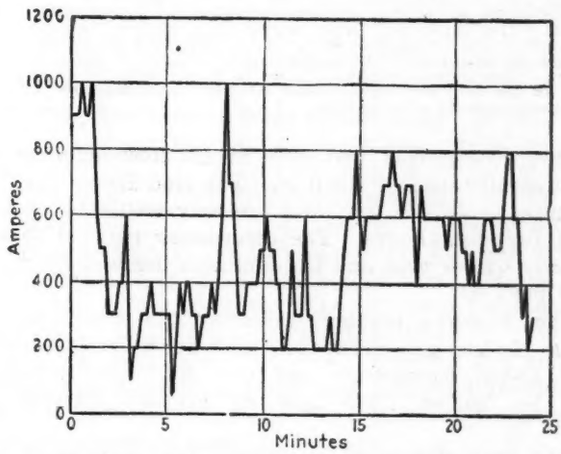


FIG. 8. LOAD CURVE ON 175-KW. GENERATOR SUPPLYING TWO 15-TON LOCOMOTIVES AND ONE 13-TON
The length of haul is 7,800 ft., the momentary demand factor is 64 per cent and the 5-minute 40.5 per cent. Readings were taken every 10 seconds.

The curve in Fig. 7 is based on actual time tests of a gathering locomotive and the current estimated from characteristic curves when this machine is operating in territory similar to that shown in Fig. 6.

The load factor for a single gathering locomotive is lower than for a haulage locomotive and the demand factor is the same for both, so that the demand factor for a large group of gathering locomotives is lower than for the same number of haulage locomotives. Fig. 8 shows readings taken every 10 seconds on a 175-kw. generator having two

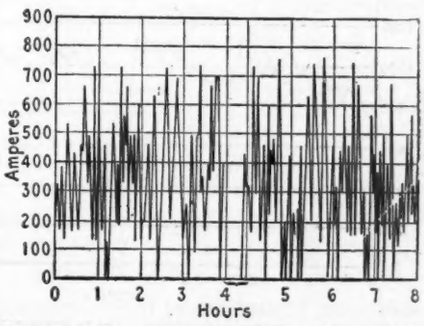


FIG. 9. LOAD CURVE ON GENERATOR
Generator is of 100 kw. capacity. It is supplying two 10-ton and one 7-ton locomotive hauling 2,900 ft. The momentary demand factor is 78 per cent.

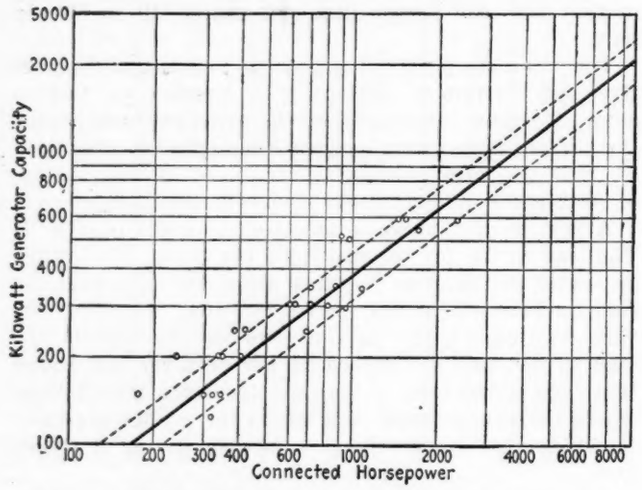


FIG. 10. CURVE SHOWING RELATION OF GENERATOR CAPACITY TO CONNECTED LOAD

This is based on the connected horsepower at twenty-six coal mines. The upper and lower broken lines may be taken as the maximum and minimum sizes of generators respectively that should be installed. The middle, solid line is a good average figure. This shows a demand factor of 83 per cent for small loads and 47 per cent for highest load included, assuming 50 per cent overload capacity of generator.

15-ton locomotives and one of 13 tons hauling an average distance of 7,800 ft. The load factor for 24½ minutes is 48 per cent and probably would be 40 per cent for eight hours. The momentary demand factor here is 64 per cent and the 5-minute demand factor is 40.5 per cent.

Fig. 9 shows readings taken at 2-minute intervals on a 100-kw. generator for eight hours during which two 10-ton locomotives and one of 7 tons totalling 270 hp. hauled 1,979 tons an average distance of 2,900 ft.

The four classes of equipment just considered are those most commonly in use and are those most important to the average coal-mine operator. Actual tests of maximum demand on direct-current generators over long periods are rarely made. Power-house attendants can keep a record of the number of times that the circuit breaker is out, and an engineer knowing this number and the setting of the breaker can obtain a general idea as to the adequacy of the generators installed.

Fig. 10 shows the sizes of the generators and the connected horsepower at twenty-six coal mines. From this data the upper and lower lines may be taken as maximum and minimum sizes of generators that should be installed. The middle line is an average that under general conditions could be used in providing generators. This shows a demand factor of 83 per cent for small loads and 47 per cent for the highest load included, assuming 50 per cent overload capacity of generators. In completely electrified coal mines, the number of which is constantly increasing, nearly all of the principal applications named have to be considered. Figs. 11, 12 and 13 show the five-minute load curves for one working day of each of three completely electrified mines.

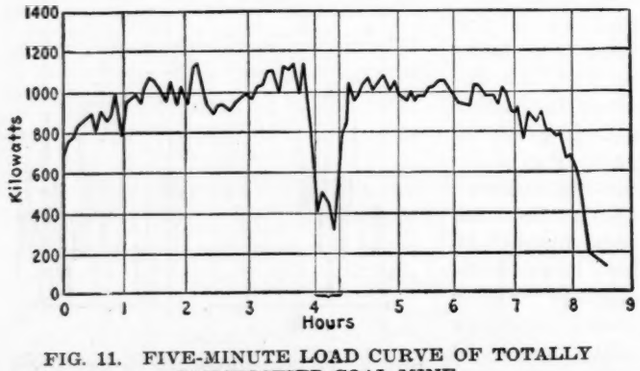


FIG. 11. FIVE-MINUTE LOAD CURVE OF TOTALLY ELECTRIFIED COAL MINE

Mine produced 4,807 tons in 8 hours. Equivalent alternating-current horsepower is 3,625. Maximum 5-minute demand factor is 1,130 kw. and 5-minute demand factor is 31.2 per cent. Trolley reel gathering locomotives used.

The one for which Fig. 11 represents the five-minute load curve is a fully developed mine using trolley-reel gathering locomotives; Fig. 12 shows the same load curve for a fully equipped mine like the first except that in it storage-battery gathering locomotives are used, and Fig. 13 shows the load on a new mine which when developed will be similar in nearly all details to the second described. The present tonnage is about 50 per cent of that expected later. The demand factor at these mines is higher than for inside equipment alone, because the surface equipment includes the hoist and fan motors, which are continuous rated machines and have a high load factor.

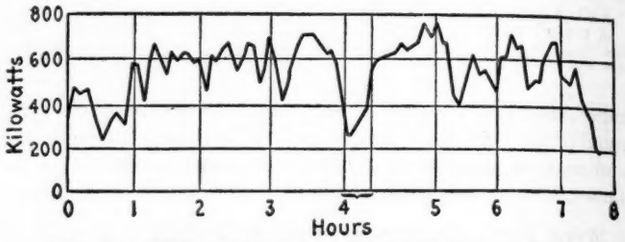


FIG. 12. FIVE-MINUTE LOAD CURVE OF ANOTHER TOTALLY ELECTRIFIED COAL MINE

Mine produced 3,493 tons in 8 hours. Equivalent alternating current horsepower is 2,529. The maximum 5-minute demand is 750 kw. and the 5-minute demand factor is 29.6 per cent. Storage-battery locomotives are used at this mine.

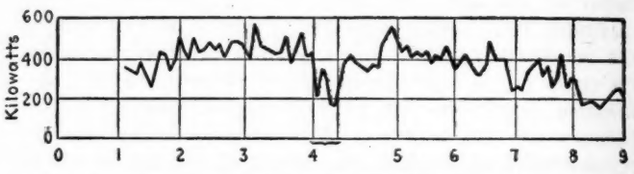


FIG. 13. FIVE-MINUTE LOAD CURVE OF A NEW COAL MINE, TOTALLY ELECTRIFIED

Mine produced 2,030 tons in 8 hours. Equivalent alternating horsepower is 1,653. The maximum 5-minute demand is 560 kw. and 5-minute demand factor 33.5 per cent. This tonnage is only 50 per cent as large as is expected later. When fully developed it will be operated in nearly all details as is the mine of which Fig. 12 is the load curve.

THE U. S. BUREAU OF MINES has gathered data regarding methods of prospecting stripping coal used in Kansas and Oklahoma, with special reference to the use of the jetting drill. The bureau is also making a study of coal stripping operations in Indiana and Illinois.

IN THE STUDY of the distillation of Freeport coal being made by the U. S. Bureau of Mines at Pittsburgh, Pa., the light fractions from the tars have all been examined and examination of the lubricating fractions is under way. A gradation of tar acids from the bottom to the top of the Freeport seam has been found, the highest acids being at the bottom. Other constituents show irregularities. Anthraxylon gives most tar acids and most anthraxylon is found at the bottom of the seam, so the results correspond. The heat of oxygen reaction with anthraxylon and with attritus is found to be the same. However, the anthraxylon is more sensitive to oxygen and has a greater tendency to spontaneous heating.

Making the Mining of Thin Coal Seams Profitable

Advantage of Lifting Bottom—Shaker vs. Belt Conveyors—Plan for a Longwall System with Conveyor Machinery—Value of the Stepped Face —Timbering Face and Guarding Conveyor—Cribs Built of Broken Props

By G. A. M. Rees
Dawson, N. M.

SOME suggestions as to the best methods of working thin seams, based on experience in this country, South Wales and England, may be of real value in view of the increasing number of thin seams being worked. In the United Kingdom methods have had to be adopted that will make available all seams over 12 in. in thickness. This necessity has caused the development of a system of mining suited to coal beds so thin that a car cannot be loaded in them without the lifting of bottom or the brushing of top. Of these there are many in the United States and the problem of working them in competition with thicker beds is one that demands careful consideration.

The system which I describe would have to be modified to suit the conditions in any particular locality. It is applicable to seams varying from 18 in. to 3 ft. in thickness with a tender, friable coal, under comparatively heavy to very heavy cover, the inclination of the seam varying from level to 5 deg.

Coal can be, and is, profitably worked under these conditions both by the longwall and room-and-pillar systems, the methods adopted being governed by local conditions. If the roof is of a clayey nature, which bends with fair readiness, the best method for its extraction would be longwall, either advancing or retreating.

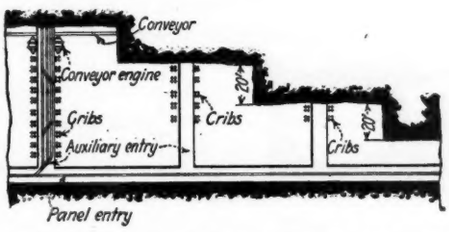


FIG. 1. LONGWALL ADVANCING WHERE TWO CONVEYORS ARE USED IN EACH AUXILIARY ENTRY

The panel entries should be 500 ft. apart and may be 750 ft. Subsidiary or cross entries or rooms are started at 500 or 600 ft. intervals. Three roads go up each room.

Seeing that when the longwall retreating method is used much expense is entailed before coal is obtained in any large quantity, it is better to work the coal on the advance. It should be cut by mining machines and loaded by face conveyors, the type of both to be decided upon for each installation, as each machine is adapted to some particular condition.

Both belt and shaker conveyors have given good results under normal conditions. Each has its disadvantages, but these are compensated by advantages that the other does not possess. The shaker conveyor—Blackett type—can be successfully adopted in thinner seams than the belt, or Sutcliffe, type, being considerably lower, but the shaker conveyor makes much more noise than the belt conveyor, which is an extremely important consideration when working under a weak, friable roof that needs diligent watching.

The seam should be laid out in panels, each panel to have its own split of the air current. Frequently the panels are each provided with two separate splits, and, in mines where large quantities of gas are generated, it is often advisable to adopt a multiple-split system. By this method a maximum quantity of air is circulated and the gas is removed more rapidly than where a single split serves for a whole panel. It has the additional advantage that it supplies the miners with good, fresh air, which they do not get when the air current is taken past several working places.

The main entries, which serve as the main haulage roads, should be driven in twos to fours, parallel to each other, the number being governed by the distance to be traveled, the gas which probably will be encountered, and the number of men working in each split, the mining laws of the different states having an important bearing on these matters. The distance between the parallel entries also will be governed partly by local conditions and partly by the provisions of the mining law of the state, but it should range between 30 and 50 ft. Care must be taken to avoid leaving pillars so small as to be incapable of withstanding the weight of the superincumbent strata, and judgment should be used to make them large enough to maintain the entries in fairly good condition.

If grades and roof cleats allow, the main entries should be driven parallel to the slips, or cleats, in the roof and coal, so as to allow the subsidiary entries to be driven approximately at a right angle to the cleats. In this maner the coal will be obtained with more ease than it would if worked obliquely. This provision is essential when the coal is mined by manual labor but is not of such importance where the coal is blasted.

The distance between main entries must be governed by local conditions and also will be dependent upon whether the seam is to be mined from both sides of each separate set of entries. If the coal is mined from only one side of the main entries, then a distance

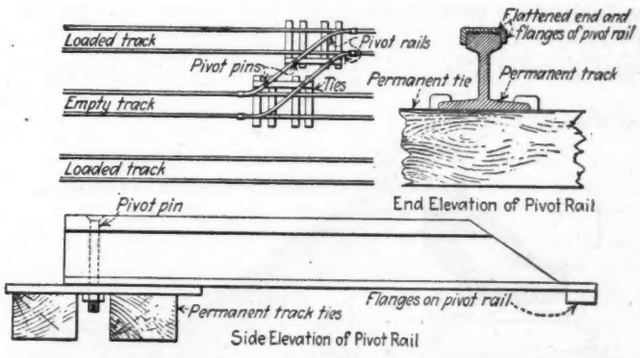


FIG. 2. CARS ARE SWITCHED FROM EMPTY TO LOAD TRACK BY PIVOTED RAILS

The end of the pivot rail is flattened off and provided with flanges which fit over the top of the loaded-track rail. Thus loads do not have to be switched in the room, and all room roads are unbroken by frogs and never have to be torn up.

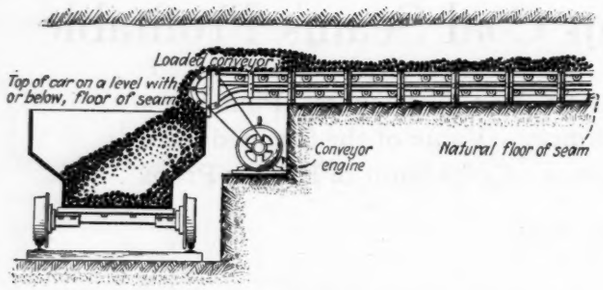


FIG. 3. WHERE BOTTOM ROCK CAN BE LIFTED

The conveyor can rest for almost its full length on the natural floor of the seam and does not have to lift the coal to get it into the car. A long conveyor is stressed enough on a level without having superimposed on it the additional stress which an upraise involves.

between them of 500 ft. will be found to be best. It may be increased beyond this, but is should never be more than 750 ft. If the coal is to be mined from both sides of the entries they may be driven from 1,250 to 2,000 ft. apart.

Subsidiary or cross entries should be started from 500 to 600 ft. apart, if two face conveyors are to be operated each feeding toward one cross entry. It is advisable that the line of the coal face be broken as shown in Fig. 1 and not continuous. When the coal face is thus stepped an extensive fall is not so likely to occur as when the face is straight. With a continuous unstepped face a fall so large might occur that it would interfere with the working and ventilation of the entire district. With a stepped face, if the roof should fall the break would be confined to the length of the step and probably would not extend for the full length.

Each step is made about 20 ft. in advance of that which succeeds it, so that each succeeding face is approximately opposite to the edge of the well-packed gob of the preceding step. This method has proved to be quite successful in friable roof.

The cross entries should be driven wide enough to accommodate three separate tracks—two for loaded cars and one for empties. The tracks and switches should be so laid that both load tracks can draw their empty cars with a minimum expenditure of labor. As it entails time and expense to pick up and relay partings, temporary switches are utilized, so that the track need not be torn after once having been laid down. The details of a switch which has given good results are shown in Fig. 2. If steel of fairly light weight is being used, the standard type of switch may be laid.

The tracks should be spaced so as to leave no unnecessary distance between them, for it is important that the entries be driven as narrow as possible. Care in this respect lowers the cost of timbering and the upkeep of

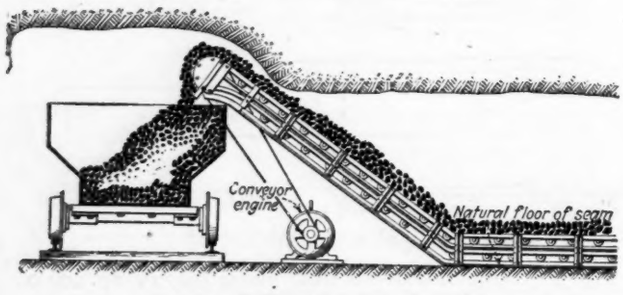


FIG. 4. WHERE THE ROOF IS BRUSHED DOWN

Excessively hard on a heavily heaving bottom makes it necessary to go into the top for height, but it is an extra burden on the conveyor and weakens the roof along the coal face.

the entry. The width of the roadway will vary considerably, as the cars at one mine are rarely the same width as at another.

As far as practicable, all brushing should be done in the bottom, so as to enable the conveyors to work to the best advantage. If the bottom rock is too hard for this purpose it will be necessary to make the conveyor elevate the coal for a short distance against the force of gravity. If the top is brushed the belt type of conveyor gives the best results.

It can be seen from Fig. 3 which method of brushing gives the conveyors least work to do and also takes best care of the draw slate, When the bottom is brushed, entry timbers can be placed underneath the top and across the primary roof supports and everything is kept intact. Consequently there is less chance that the draw slate will break down along the face.

When the floor is brushed a ledge should be cut in the underclay on either side of the cut to accommodate the conveyor engine. The distance between the bottom

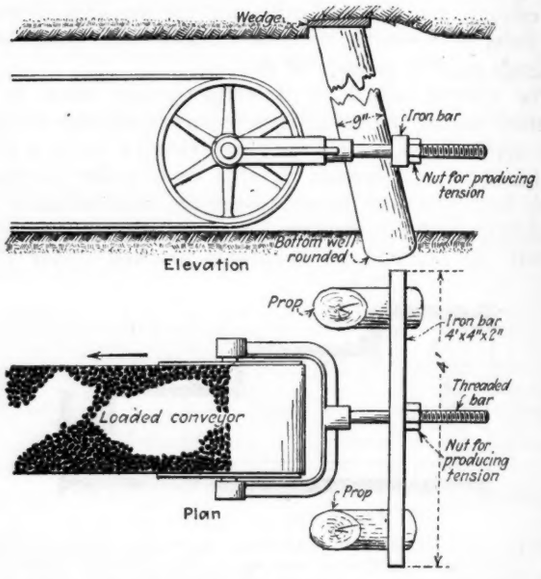


FIG. 5. HOW THE CONVEYOR IS KEPT TAUT

An iron crossbar is held in place by two 9-in. posts set on a batter. A yoke is attached to the rear pulley of the conveyor. This yoke ends in a threaded bar which, passing through a hole in the crossbar, is tightened by the rotation of a nut.

of the ledge and the natural floor of the seam would be approximately the height of the engine, thereby allowing the belt or shaker to work in a horizontal position. This would have to be modified if the cars were of such a size that the top of the car would be at a higher level than the bottom of the seam. In this case the ledge should be so arranged that the belt would be at a higher level than the top of the car.

The belt conveyor is kept taut by means of a tension pulley, this pulley being kept in place by means of two 9-in. props set for this specific purpose. On no account should it be fastened to props used for supporting the roof. The duty of this pulley is to keep the belt from sagging unduly. When thus kept tight the belt when loaded does not foul with the rollers.

The best results have been obtained from belts from 20 to 24 in. wide when working seams up to and including 3 ft. thick. The speed should range from 2½ to 3½ miles per hour and the latter should never be exceeded. If it is the coal is likely to be broken, and the wear on the belt may be excessive. If the coal comes too

speedily the work of the man whose duty it is to "top off" the cars may be made difficult. Belts working at the speeds indicated have given satisfactory results, and, after three years' continuous service, were in fairly good condition.

Both types of conveyors, ranging from 400 to 500 ft. in length, can be removed and reset in their new position by three men in one shift of eight hours, and all the timbering needed can be done by the same crew.

The method of timbering and the size of timber must be carefully selected if the conveyors are to give the results desired, and the correct placing of the timbers at the outset should be given the personal attention of the mine foreman, this supervision continuing until the workmen fully understand what is required of them.

A method of systematic timbering should be adopted and rigidly adhered to. If any laxity is exhibited in this part of the work, the system will fail, and valuable machinery, and even lives, may be lost.

Split Prop Used as Crossbar Over Conveyor

The method of timbering should be as follows: The props in any row should not be more than 4 ft. apart and the distance between the rows should not exceed 4 ft. As a safeguard to the conveyor line, additional timbers should be set in the form of miniature sets of timbers, to be fixed as follows: A 3-ft. crossbar to consist of one prop split or sawed along its entire length, supported by two props, one under each end, no cap pieces or wedges being permitted on top of the crossbars. The maximum distance between the crossbars should not exceed 3 ft.

The distance between the props at the bottom should exceed that at the top and should be approximately 4 ft. This would insure that the maximum use would be made of the resisting and bending properties of the props. Furthermore, fewer props would be broken by the weighting of the roof.

The temporary props should have a diameter of from $2\frac{1}{2}$ to 3 in. and the props set under crossbars should be 4 in. in diameter. The crossbars should be made from timbers of 6 in. diameter. Thus each bar would be 6 in. wide and 3 in. thick. Lightly shaving the end of each crossbar would insure the proper fitting of the props and the danger of any of them becoming dislodged would be eliminated thereby.

In the space vacated by the removal of the conveyor, chocks or cribs should be placed, at intervals which should not exceed 25 ft. One crib should be set at the side of the entry, the inside cribs being arranged on staggered lines. This arrangement is shown in Fig. 7. The spaces between the cribs are carefully filled with débris.

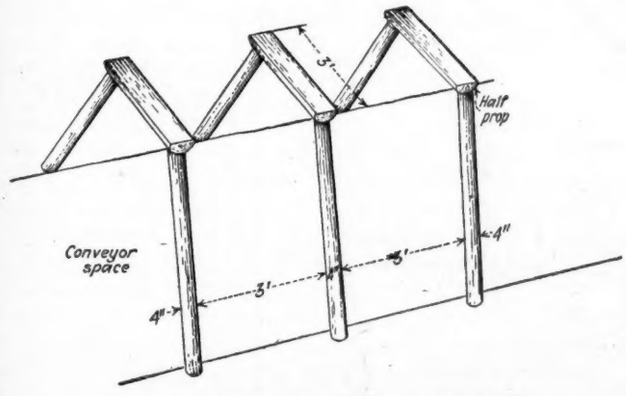


FIG. 6. TIMBERING OVER A CONVEYOR

The roof timber or cap is a 6-in. diameter timber split or sawed in two with the flat side uppermost. The legs are 4-in. diameter posts.

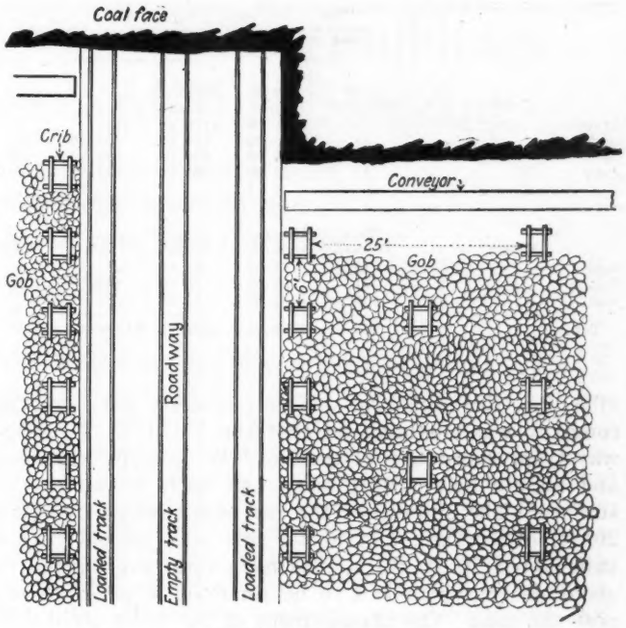


FIG. 7. LONGWALL FACE WITH CRIBBING

The cribs are built of broken props. The piles of gob are started from the sides of the cribs and built outward. The dimensions shown for the distances between cribs are in both cases larger than some of the roof conditions encountered will permit.

The cribs could be built of broken props, enough of these being made by this method of working to provide for that purpose. Cribs should range from 2 to 3 ft. square, or as near these figures as possible.

After the cribs are properly set, the spaces between them can be systematically packed and 94 per cent of the used timbers reclaimed for further use. The gob walls should be started from the cribs, the timbers being withdrawn as the packing is completed. This will insure that the roof will settle evenly on the gobs and in consequence few falls of any size will result. From observations I have made, the average settling on the gobs under this system is 4 in. per week per yard.

Cost Data Regarding an Anthracite Stripping Aggregating About Five Thousand Tons

By Dever C. Ashmead*
Kingston, Pa.

NOT all mining problems relate to the removal of large acreages of coal. Sometimes a small area requires as much skill for its extraction as one that is large, for if the problem of operation be not correctly solved the work may not be as profitable as it might and should be. For instance, some of the coal near the surface of the ground may have been mined some time in the past, leaving pillars which it would pay to remove. The breasts, however, may have caved, making it expensive and even impossible to remove the pillars by underground mining. Where the cost of such removal would be more expensive than the price of the coal would warrant, a small strip pit might meet the needs of the situation and might produce coal at an exceptionally low price.

At the mines of the Pine Hill Coal Co., near Miners-

*Anthracite editor, *Coal Age*.

TABULATED STATEMENT OF COST OF WINNING COAL AT WHITE ASH STRIPPING

Month	Days Worked	Removing Cover: Supervision	Shovelman	Labor	Supplies	Coal and Water	Total	Per Month: Estimated Cu.Yds. Removed	Cost Per Cu.Yd. Cents	Cumulative To: Total	Cu.Yds. Removed	Date Per Yd. Cents
March	13	$66.00	$170.00	$115.65	$2.86	$55.12	$409.63	800	51.2	$409.63	800	57.2
April	23	66.00	170.00	353.38	125.38	92.52	807.28	2,000	40.3	1,216.91	2,800	43.4
May	23	66.00	170.00	632.39	14.49	92.52	975.40	3,400	28.7	2,192.31	6,200	35.3
June	13	33.00	85.00	313.98	8.35	55.12	495.45	600	82.5	2,687.76	6,800	39.5

Month	Days Worked	Removing Coal: Supervision	Shovelman	Labor	Supplies	Coal and Water	Total	Tons Of Coal	Per Ton Cents	Total Cover and Coal	Tons Of Coal	Per Ton Cents
June	13	33.00	85.00	231.10	81.34	27.56	385.00	1,252	30.8	3,072.76	1,252	....
July	21	66.00	170.00	422.05	51.92	44.94	754.91	1,857	40.7	3,827.67	3,109	....
Aug.	18	55.00	142.00	277.62	33.21	38.52	546.35	1,617	33.8	4,374.02	4,726	92.5
Total	124	$385.00	$892.00	$2,346.17	$244.55	$406.30	$4,374.02					

ville, Pa., this difficulty was encountered, but here the company was fortunate in that the No. 1 W. A. gangway from the bottom of the No. 1 W. A. slope was open and an air hole 120 ft. deep had been driven to the surface. The outcrop of the coal was covered by about 20 ft. of surface, and above this was an old refuse bank about 20 ft. thick, making a total overburden of about 40 ft. which had to be removed in order to expose the coal. The management of the mine decided to strip this coal and dump it as mined into the air hole. An estimate showed that 6,800 cu.yd. of cover had to be removed to make available approximately 4,726 tons of coal. A small revolving steam shovel was used to handle both the cover and the coal.

Hoisting Engine Took Away Overburden

Work was started during the middle of March, 1921, and by the middle of June the overburden had been removed. The steam shovel loaded the earth and the refuse from the old dump into a small car. This was attached to the end of a rope and pulled by a small hoisting engine to the top of a refuse plane, where it was discharged. The accompanying table shows the detailed cost of removing this cover, the average cost per cubic yard removed being 39.5c. and the total cost being $2,687.76.

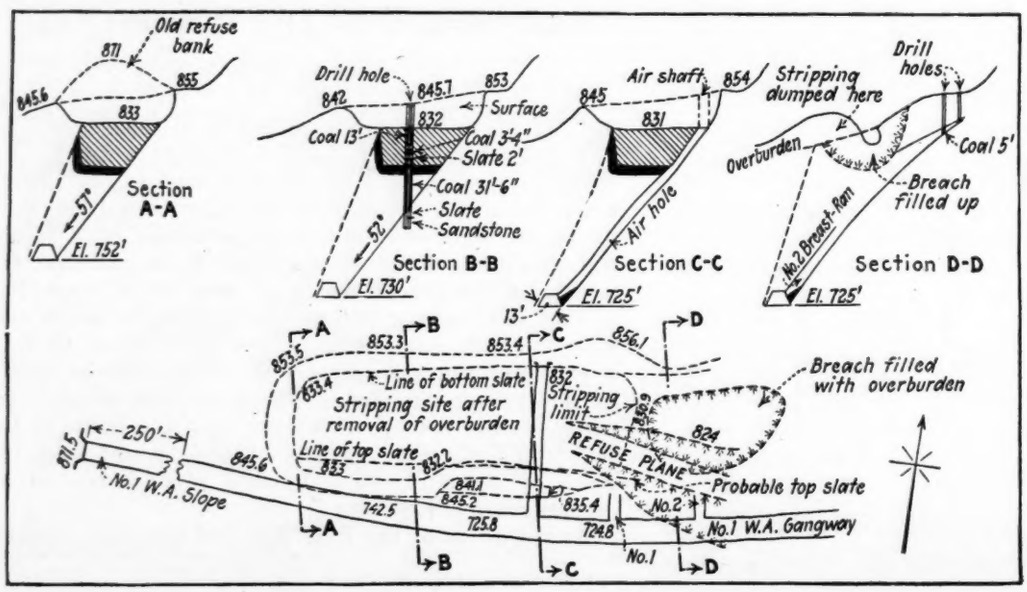
As soon as the coal was uncovered the shovel started to load it. By Aug. 20 it had been extracted as far down as it was safe to operate, the quantity obtained being 2,110 cars which would contain in normal underground operation approximately 2.24 tons per car. This figure probably is too low, as most of the mining is done in measures which pitch heavily, and in consequence the cars as loaded usually contain a large quantity of rock. As the coal loaded came from the Mammoth Bed, which at this point is quite clean, the yield from the strip-pit coal probably was much nearer three tons per car than 2.24 tons.

But, even using the smaller yield, the total cost of mining the coal, taking into account the cost of stripping the coal, was 92.5c. per ton, or a total cost of $4,374.02, as shown by the accompanying table.

Shovel Mined Away Under Hanging Wall

At this point the steam shovel had to be taken from the stripping because the hanging wall of the beds overhung so much that it was feared that a heavy blast might cause it to fall on the shovel. What coal remains will be mined by hand and sent down into the mine through the same air hole as was used by the steam shovel. Now that the work is being done by hand the overhanging wall can be properly supported by braces. It was impossible to place these while the steam shovel was in use, as they would have been in the way of the shovels.

It must be remembered that these figures merely include the cost of removing cover and coal and do not cover the cost of hauling coal to the breaker, cleaning, sizing and loading it into railroad cars and disposing of the refuse. The fact that the air hole and underground roadways were standing and in condition for use made conditions unusually favorable for operation.



Small Strip Pit

This pit was made to save some outcrop coal which had been left in early operation. The No. 1 W. A. slope and the air-hole driven at right angles to it on the footwall of the seam are parts of the old workings. One was used for the hauling of coal and the other as a slide for the coal which was mined by the shovel.

Electric Elevators Such as Serve Office Buildings Are Suitable for Some Kinds of Mine Hoisting

At Large Mines Elevators Are Useful for Hoisting Men, at Medium-Sized Mines for Raising All but Coal and at Small Mines for All Hoisting—Sometimes Save One Man

BY CHARLES M. MEANS*
Pittsburgh, Pa.

CERTAIN classes of mine hoisting could be performed satisfactorily by the modern electric elevator if it were modified to suit mining conditions. It is safe, economical and easily operated.

Though the use of elevators in mining work seems a radical departure from long-established practice, in many districts they would fully satisfy the demand for low first cost and moderate operating expense, whereas the use of more expensive equipment would make the undertaking unprofitable.

In large, deep mines elevators can be used only for raising and lowering men—that is, for passenger service. At smaller operations a combination freight and passenger elevator can be used for handling men, supplies, and rock between surface and underground workings. In shallow mines of small capacity the freight elevator can profitably replace the ordinary hoist, performing all its duties even to the raising of coal.

Electrically operated freight and passenger elevators have passed the experimental stage. They have been in successful operation for many years in apartments, office buildings, warehouses and factories and are rapidly superseding the hydraulic elevator.

WHY HAS THE HOIST MONOPOLIZED THE FIELD?

It is true that they are not often found at coal mines, but that probably is due to precedent and also to the fact that the application of electricity to coal mining on a comprehensive scale is comparatively recent. When electricity was first applied to mine hoisting the steam engine was replaced by an electric motor, but the location of the equipment, the type of headframe, the style of cages and other conditions remained the same. Today manufacturers have evolved from the steam machine a compact-unit type of hoist and motor. This is in general use for all classes of hoisting regardless of the economy that might be obtained if elevators were used.

The passenger elevator, when applied to the larger deep mines and used for men only, can be placed in a compartment of either the main or an auxiliary shaft or it can be located in a separate ventilating or specially constructed shaft remote from the main openings. In either case the elevator would serve as an emergency or regular means of entrance to and exit from the mine where the depth is too great for stairways or ladders. It can also be operated independently and without interrupting the work of other hoisting equipment.

If the elevator is located at the main opening and is regularly used as the entrance to the mine, its movement probably will be regulated by a controller or push button located on the cage and operated by an attendant. This has an advantage over the ordinary hoist in that the operator is always with the cage and can either anticipate an emergency or else can act the instant an emergency appears.

If the passenger elevator runs in a shaft remote from the main opening it probably will be used as an emergency exit, and in this case it would be of the full-automatic type so controlled by push buttons at the landings and on the cage that it could be brought to any landing whenever it is not in use at some other level—that is, provided the safety gates are closed. An elevator of this type does not require an attendant and anyone can operate it with safety.

SMALL MINE CAN WHOLLY RELY ON ELEVATOR

At a mine of smaller capacity a combination elevator—one for freight and passenger service—can be used for handling supplies, rock and men. This elevator would take the place of the ordinary auxiliary hoist. Where men are hoisted it preferably would be regulated by a man stationed within it, push buttons or a controller being the actuating means. When handling loads push buttons at the landings would regulate the movement of the cage. This would eliminate a hoisting engineer, as the men handling supplies can operate the elevator and also attend to their other duties.

For mines of medium size where the use of two cages and balanced hoisting for coal is warranted the elevator also has merit. In this case either self-dumping or platform cages can be used. The control would be full-automatic and the elevator operated by push buttons at the bottom so arranged that the cage cannot start until the man at the top has closed a switch in the case of self-dumping cages, or until the safety gate is closed in the case of platform cages. A signal system also can be used if desired, the hoist being started by the bottom cager, but not until he is so signaled by the top cager. This installation also would make a hoisting engineer unnecessary.

MAKES LARGE SAVINGS IN CONSTRUCTION COST

In taking up some of the merits of elevator installations at the smaller mines, consider, for example, a new mine opening in which the total lift is, say, 80 ft. and the mine is to produce 700 to 800 tons in seven hours. If the ordinary hoist is used it is necessary to construct a heavy headframe with batter legs and anchors, fit the headframe with substantial head sheaves, construct a separate building to house the hoist, build a rugged hoist foundation, and place the hoist in charge of a competent operator. On the other hand, if an elevator is installed, using a single counterbalanced cage, the same headframe is suitable (for the vertical stress is the same), the batter legs and anchors are not needed, the hoist house is displaced by an inex-

*Charles M. Means Co., Consulting Engineer, 447 Oliver Bldg., Pittsburgh, Pa.

pensive pent house on top of the headframe, and the head sheaves are eliminated as well as the hoist foundation.

An elevator having sufficient capacity to raise a mine car loaded with 2½ tons of coal can be installed. This elevator can have a hoisting speed of 250 ft. per minute, thereby making the lift of 80 ft. in about 21 seconds. If only one hoist is made per minute the time of 39 seconds can be allowed for dumping the load, lowering the empty car and caging at the bottom. At this rate 150 tons of coal can be hoisted per hour, or 1,050 tons per day of seven hours, continuous operation. If 20 per cent delay is allowed, the production can easily reach 800 tons in seven hours.

It also is entirely feasible for the elevator operator to assist in caging at the bottom as well as dumping at the top. By this arrangement the mine using an elevator probably would have two less men on its payroll than the mine using a hoist. In any event one man on the tipple can be eliminated as well as the hoisting engineer. This saving would be a considerable percentage in the case of the small mine.

Elevator winding engines are of rugged construction and can be driven by either a direct- or an alternating-current motor, the motor being specially designed for hoist duty. Elevator control is flexible and almost any method desired can be used, although each application has special requirements and a control consistent with these requirements should be installed. The elevator also permits the use of all mechanical and electrical safety features as applied to the hoist, and in addition, in those applications where the attendant is on the cage, extra safety is afforded by the fact that the operator can see the operation at all times.

In general, the use of the elevator for mine work may seem a little revolutionary, and while the large high-speed hoist is necessary for its particular application, there are indeed many places where this hoist is used inconsistently with the conditions of application. If, on the other hand, each hoisting job is given the careful study demanded by the operating characteristics and local conditions it will be found that in many cases the elevator far surpasses the hoist from all standpoints.

Scheme for Meeting Peak Hoisting Loads

AN article under this title by J. L. Knight, chief electrician of the E. E. White Coal Co., Glen White, W. Va., suggests a scheme by which a rotary converter connected to the line drives a direct-current motor carrying a heavy flywheel. When a peak comes on the hoist, the flywheel drives the direct-current motor as a generator feeding current back to the line by way of the rotary converter, thus assisting the hoists over the peak.

In regard to this article, A. E. du Pasquier, of the Metropolitan-Vickers Electrical Co., of Trafford Park, Manchester, England, writes under date of June 2: "This scheme was developed and patented by the British Westinghouse Co. over seventeen years ago and the first exemplification of it was installed in connection with the electric winding engine of the Maritime pit of the Great Western Colliery Co. and was fully described in a paper read by the late Hugh Bramwell. Later the British Westinghouse Co. installed a similar equalized winding engine for the Lingdale property on the Northeast Coast. The British Westinghouse Co., as you probably know, was acquired by the Metropolitan-Vickers Electrical Co., Ltd."

A NEW INVESTIGATION to be undertaken at the Experimental Mine of the Bureau of Mines, near Pittsburgh, Pa., has for its object the determination of the following factors in the problem of coal-mine ventilation: (1) Most practical method for the measurement of flow of air in mines; (2) resistance of flow of air under various conditions of surface, cross section and obstructions; (3) coefficient of friction; (4) simple formula for mine ventilation calculation; (5) flow of heat in coal and shale.

Illinois Central R. R. Has Its Whole Organization "Count the Scoops" to Save Coal

J. W. Dodge, Illinois Central fuel economist, preaching "Count the Scoops" to everybody from division superintendent down to "car whackers." This conservation car goes everywhere on the system.

L. W. Baldwin, vice-president, who told the international Railway Fuel Association in Chicago that the coal-saving methods on his road prevented the waste of 30,000 tons a month.

Exhibits like these, in various yards and roundhouses, bring home the lessons of coal thrift with much force because they are always in sight and they "speak" a language that cannot be misunderstood.

Proposed Moffat Tunnel in Colorado To Open Up Vast Coal Field

WITH the passing of the Moffat tunnel bill by the Colorado State Legislature the opening of one of the world's greatest coal fields is now assured. The State Supreme Court has been asked to give its opinion as to the constitutionality of the bill before Governor Oliver Shoup signs it. More than 65,000,000,000 tons of coal in Colorado and Utah are available in the district, for which the Moffat tunnel will provide feasible, in place of impossible, transportation conditions.

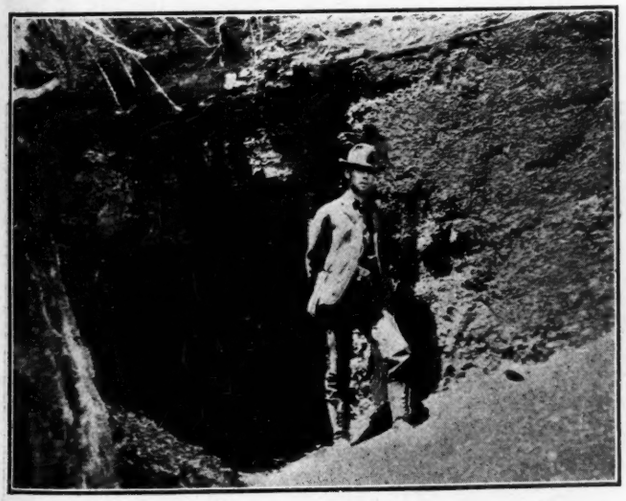
According to Professor R. D. George, State Geologist, the passage of the bill brought recently from Governor Simon Bamberger, of Utah, the promise that every aid will be given to the Moffat road to extend its line from its present western terminus through to Salt Lake City. A report current in Denver is to the effect that Governor Bamberger and other interests already have obtained the right of way for that extension. The Utah State Engineer is now at work on the survey of the line through the Uintah basin, where construction is expected to begin.

Moffat Tunnel Driven Through Mountain Peak

The Moffat tunnel will be driven through James Peak, and it is estimated that it will be more than 6 miles long. A vast wealth not only of coal but of other minerals will be made available by the construction of this new link, the need for which has been long felt. The passing of the bill ends a sixty-year fight which was begun by pioneers of the state.

When completed the tunnel through the peak will form part of what will be the shortest transcontinental line through Colorado. Besides the coal fields there are over 7,000 square miles of oil-shale deposits in northwestern Colorado and northeastern Utah. Strata of an asphaltic nature occur in this district, and clay, copper ores, gold, gypsum, graphite, lead, manganese, mercury, molybdenum, marble, salt, scoria, silver, slate, sulphur, tungsten, zinc and other minerals are found.

According to Professor George, the greatest coal areas of northwestern Colorado and northeastern Utah lie along the Moffat (Denver & Salt Lake) R.R., and the line laid down for the extension beyond the proposed tunnel and the Denver & Rio Grande Western R.R.



COAL BED THREE MILES WEST OF EDDY, COL.

The coal is more or less pockmarked, as frequently happens near the surface. It will be noted that the seam is dipping steeply to the left and apparently even more rapidly into the body of the hill.

OPENING OF TWENTY-FOOT SEAM IN LAY, COL.

Sixty-five billion tons of coal are said to stand ready to be rendered available as soon as the Moffat tunnel is built and in working order.

The following is an incomplete list of the coal areas that the Moffat will lay open for operation:

Yampa coal field in the upper valley of the Yampa River in the region of Steamboat Springs; Danforth Hills and Grand Hogback coal field, located in Moffat, Rio Blanco and Garfield counties; coal fields of northwestern Colorado and northeastern Utah, including the Western Yampa, Lower White River and Vernal coal fields, located in Rio Blanco and Moffat counties, Colorado, and Uintah County, Utah; Deep Creek coal field, located on Upper Deep Creek, west of Vernal and north of Fort Duchesne, Uintah, County, Utah; Black Tail Mountain coal field in eastern Wasatch and western Duchesne counties, Utah.

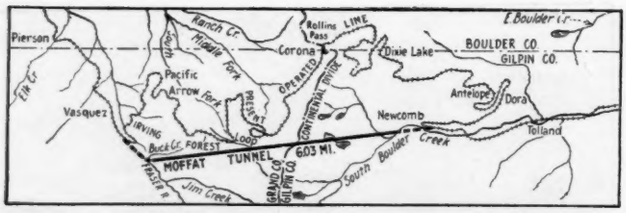
A Region With Extensive and Thick Coal Beds

The Yampa coal field is said to cover an area of approximately 1,200 square miles. Estimates taken from the United States Geological Survey show that there is a probable reserve of 39,000,000,000 tons. These deposits are of a good grade of bituminous coal. Some anthracite of good quality also is found.

Approximately 360 square miles of coal area is found in the Book Cliffs district of Colorado. The Danforth Hills and Grand Hogback area covers approximately 375 square miles. This district extends from Moffat County, through Rio Blanco and into Garfield County. The Deep Creek coal field is on Upper Deer Creek west of Vernal, Utah, and north of Fort Duchesne, in the same state.

The Black Tail Mountain field only awaits transportation facilities for its development. This area, according to state data, is approximately 150 square miles in area and contains a tonnage estimated at 1,857,600,000. The Deep Creek field will yield 35,000,000 tons of coal.

The new cut-off will replace a line 32.62 miles long by one of only 9.32 miles. That, however, is not its chief merit. The original line had a grade equivalent to 4 per cent for 26.89 miles of the 32.62 miles of its length. The tunnel will be nearly level and will be only 6.03 miles long. The approaches to be built to the tunnel site will be at one end only 1.96 miles and at



SHOWS PROPOSED TUNNEL AND ITS CONNECTIONS

Also the old winding road to the north, which looks more like a contour or stream line than a working railroad. Note the loop, however, at a place of that name where only by crossing over itself could the heights aimed at be attained. The highest point on the railroad, Corona, is 11,660 ft., or 1,100 ft. over two miles high. Mont Blanc is only 15,700 ft. high, or a trifle over 4,000 ft. above the railroad in Rollins Pass.

the other 1.31 miles long, and the grade will be equivalent to 2 per cent. The heavy grade, the immense snowfalls and slides and the irregular alignment have made the Denver & Salt Lake R.R. extremely hard to operate. In consequence the coal fields that it taps have been practically shut off from the market and the road has been principally operated for its remarkable scenic value. With the tunnel built the road doubtless will have a large coal traffic.

Coal Cutter Having Variable-Speed Drive Cuts Seam with Controller Wide Open

IN ORDER to enable a coal-cutting machine to make speed wherever conditions favor it, a cutter of new design was built by the Goodman Manufacturing Co. and in March, 1920, was set to work. It was dubbed the universal control shortwall cutter. Since then this company has placed several of these machines in numerous operations throughout the country.

In this machine both rope drums have duplicate functions. Either drum may be driven by power, but not both simultaneously. Both of these rope drums have two speeds, high and low, the high speed being seven teen times the low speed. Both the high and low speeds of both drums are provided by a variable-feed drive and are thereby under perfect control. On either high or low gear the working speeds may be varied to exactly suit existing conditions—that is, they may be made anywhere from nothing to full-gear speed.

The variable control of the feed may be used for sumping with the right-hand rope and for the running cut with the left-hand rope. All movements of the machine may also be made under this same variable-speed control. This speed variation renders it possible to operate the motor with the controller always fully open, the resistance being used only in starting. Sumping and running cuts are practically one continuous operation.

Sumping may be accomplished with the right-hand rope on controlled low speed. When this sumping cut is finished, the power is thrown to the left-hand rope and immediately without shifting jacks or ropes, the machine begins to cut across the face. Low speed is used in sumping and on the running cuts. It is so geared as to give a cutting speed adapted to the particular mining conditions under which the machine is to operate. There are places, however, even in mines which are regarded as having uniform conditions, where unusual cutting is sometimes encountered. For such places the feed is regulated by means of the variable-speed control.

Brief Pause Between Sump and Shortwall Cut

As a matter of fact the speed is regulated in a manner essentially automatic, for by adjusting the friction control just tight enough under normal conditions to pull the machine at full-gear speed the feed will automatically slow down when hard cutting is encountered. Then when the cutting becomes normal again the proper full-gear feed will automatically be resumed.

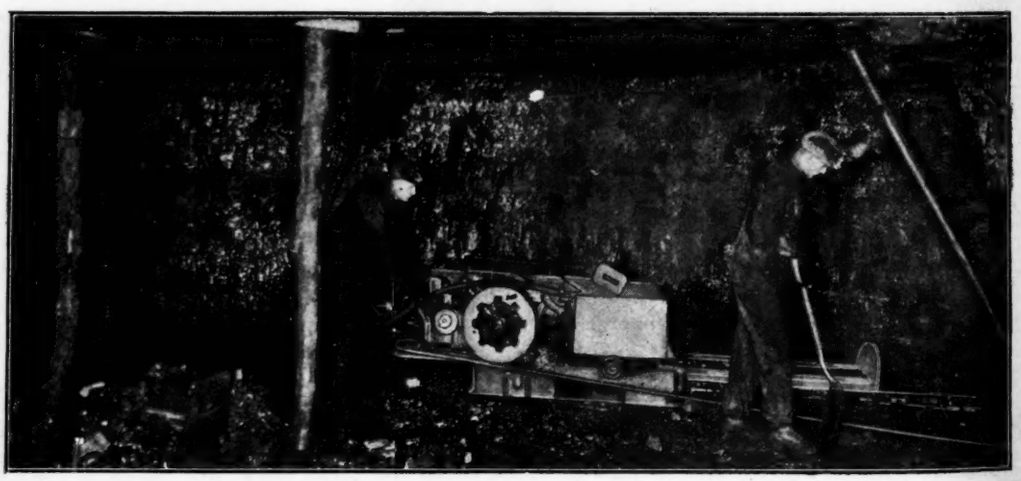
The interval between the finish of the sumping cut and the beginning of the running cut is negligible, for after sumping with the right-hand rope the friction control of the variable-speed drive is loosened, the power shift lever is reversed and the friction control again is tightened so as to start the running cut with the left-hand rope. The controller is not touched during this operation and the motor continues running at full no-load speed.

In all movements of the machine within the working room from the time when unloading is started till the time when the machine is reloaded advantage is taken of the variable-speed control, yet every operation or movement dependent upon the ropes is under the control of the variable-speed drive. Consequently the motor always runs on an open controller. This effects important savings in power, otherwise lost in the resistance. It also increases the life of the resistance and reduces the frequency with which controller contacts are burned out.

This type of control renders possible the use of both ropes in a natural and time-saving manner. Each is unwound from a drum for the first jack setting. When

Beginning a Cut

Machine sumping in at the face of a room, the pull of the lead rope serving to swing the cutter around as it advances under the coal. Note position of the machine in respect to the coal face. The chain guard retreats as the chain cuts its way into the solid coal, so that protection becomes unnecessary.



Ending a Cut

The former lead rope is now a tail rope holding the cutter in proper position while it completes its short-wall cut. Naturally the speed with which the machine is required to travel varies from the sumping to the shortwall position and according to the the resistance of the coal to be cut. The speed of travel may vary considerably yet no electric control is needed to permit of such wide variations. Where the work is easy the speed is rapid and where hard the speed is slow.

the right-hand rope is wound up in sumping, it is ready for use as a tail-rope on the running cut. On the completion of the cut across the face an ample length of this rope is unwound for the reloading operation. When the machine has been loaded the right-hand rope is completely wound upon its drum; the left-hand rope is almost completely wound up at the completion of the face cut.

There is no possibility of injuring the machine or of breaking the rope by simultaneous application of the power to both drums, for the power shift releases one drum before it engages the other.

While the Universal shortwall machine retains all the merits of the standard undercutter that have been developed during the past decade, it extends and duplicates features of the older one in such a way as to obtain more production with less effort. Various details have been given increased strength in order to meet the greater stresses imposed by the faster work made possible by the new type of control.

The new machine may be motored and equipped to cover the entire range of power requirements and physical conditions encountered. Either direct or alternating current in all mining voltages may be used in 35- to 50-hp. motors. These latter may be either open or inclosed. The truck may be made standard, of the low type or provided with a turntable. Various lengths of cutter bars also may be employed, while the rate of full-gear feed may be made suitable to the coal and the nature of the cutting.

A guard for the cutting chain also is provided. This telescopes into the base of the machine as it makes its sumping cut into the coal. A tilting shoe is also placed across the base for guiding the machine so as to enable it to follow a rolling bottom and avoid unduly hard places. This undercutter is provided also with rear and side openings for clearance of the cuttings. It is fitted with the usual four-point drum type of controller.

Because of its general design and the nature of the control employed this machine has been likened to a two-armed worker whose right and left hand are of equal power and deftness.

U. S. Government Is Training 130,000 War Veterans in Trades and Professions

WITH more than 130,000 students enrolled, the U. S. Government is conducting the largest trade and industrial school in the world. This "school" is the rehabilitation division of the United States Veterans' Bureau, through which the government is training these veterans in a trade, industry, profession, business or in agriculture.

The instruction in these vocations is furnished in leading colleges, technical schools, commercial schools as well as in business establishments, shops and on farms. These men are in training in every state in the Union and in every large city in the country. In all the large industrial centers these men who have received this intensive training from the government are available for positions. Every vocation is represented and any employer who needs additional personnel will be furnished such personnel from his vicinity in short time by notifying the Veterans' Bureau. Not only is this personnel trained in the best schools available but they have also received practical instruction on the job in industrial establishments and in shops.

These men are not permitted to terminate their training until the bureau is assured that they are skilled workmen and capable of carrying on in the vocation for which they are trained, and meet the requirements of the commercial, industrial and agricultural world. The courses of instruction vary in length from one year to four years while the average length of a course is two years.

The impression that the majority of men who are receiving vocational training suffer from amputations is erroneous, as statistics compiled by the Veterans' Bureau show that less than 2 per cent of the men in training suffer from amputations. The other 98 per cent have disabilities such as shrapnel and gun-shot wounds and other disabilities to which the civilian population is subject, such as heart trouble, bronchial diseases and minor disabilities. These men, however, are not permitted to select courses of training in which their disabilities will be a handicap or interfere in any way. Those persons who have tuberculosis are not permitted to take vocational training until the tuberculosis is arrested or inactive. The disabilities of the majority of the vocational students are not noticeable and in no way prevent them from successfully competing with civilian workers on an equal basis.

THE UNREAD ARE the easy prey of the Red.—*Columbia Record.*

LUCKILY FOR THE PUBLIC, neither capital nor labor is so inhuman as the other says it is.—*Boston Herald.*

Problems of Operating Men

Edited by James T. Beard

Need of the Certification of Shotfirers in the Practice of Coal Mining

Evident Intention of the Law to Insure Safety of Mine Workers — Foremen Held Responsible Though Not Rightly Blamable — Law Weak in Relation to Shotfiring in Mines

IN almost every issue of *Coal Age* for the past seven or eight years there has appeared a letter, from one or another of its many correspondents, discussing the dangers arising from the use of explosives in coal mines.

Of late, the opinion of those participating in this discussion seems to have crystallized into the conviction that, until the law provides for the examination and certification of shotfirers and their employment in every mine, there is little hope of lessening the frequency of accidents due to blasting.

That the intention of the law makers was to insure increased safety in the use of explosives, by forbidding the employment of incompetent men to fire shots, is evident from the following clause of the bituminous law, which reads: "Only competent persons who have the necessary training and skill, and who have been properly instructed in the work and duly authorized by the mine foreman shall be allowed to fire shots electrically in any mine." (Art. 11, Rule 89.)

It is not evident, however, that this intention is fully carried out. While the law stipulates the condition under which shotfirers shall be employed and states their qualifications and duties, it fails to specify the degree of skill and nature of the training required. Instead, it places the whole responsibility of determining the competency of shotfirers on the mine foreman.

The Foreman Responsible

Of course, the mine foreman is not to blame for the burden imposed on him by the law, nor for the failure of a shotfirer in performing his duties. Yet he is held responsible by the superintendent for the daily output of the mine. Any falling off in the daily tonnage is a reflection on the foreman.

As was once remarked by a correspondent, the foreman must often take chances that would make a superintendent's hair stand on end when a shotfirer fails to report for work. He is forced to employ anyone who is willing to act in that capacity, and considers himself fortunate if he can find a substitute.

It is often difficult to get men to undertake work requiring the handling of explosives. The pungent quality of the smoke and gases produced in blasting, so affects a man unaccustomed to the work that he is generally laid up the following day with a severe headache and a feeling of lassitude, which makes him reluctant to endure the ordeal a second time.

To overcome this difficulty and make the work safer, many coal companies impose the work of shotfiring on their assistant mine foremen; but it was soon discovered that any additional safety gained in the assistant's capacity as a shotfirer was lost in his capacity as an assistant. The duties of shotfiring exacted too much time and infringed on the attention that should be given to supervising the miners. For this reason, the practice was largely discontinued.

Where the Shotfiring Law Is Not Sufficiently Adequate

It is readily seen that the provisions of the law relating to shotfiring, work a hardship on the men, the mine foremen, and on employers alike and that, instead of giving assurance of safety, the present law is a source of weakness from which arise the majority of accidents that occur in the handling and use of explosives. The law, in this respect is fundamentally weak, as I will try to show.

From the law we learn that a shotfirer must have ability to examine for and detect, by means of his safety lamp, the presence of explosive gas in working places. Whether the ability of a shotfirer to examine for gas and to determine the safe condition of his lamp must be equal to that of a fireboss the law does not say. But common sense demands that it must be so, since safety depends on the experience and judgment of a shotfirer, in the examination of a working place before firing a shot therein.

Mistakes in judgment, carelessness, and haste may prove costly, and these cannot be repeated with impunity in the presence of a dust-laden atmosphere containing even a small percentage of explosive gas. The shotfirer must be able to judge and determine whether holes are properly placed, and must refuse to charge any that are not. He must also possess a knowledge of the dangers existing in thin pillars, bad roof, dusty atmospheric condition, improper timbering, and other physical conditions.

The law further states that a shotfirer must be able to speak English. Why not, also, read English? In work of this nature, much will depend on a shotfirer being able to read and inform himself regarding those provisions of the law that relate to his work and duties. He should read the yearly reports of mine inspectors, detailing at length the accidents resulting from the use of explosives and the manner in which they occur.

Bureau of Mines Publications

Bulletin 17 and Miners' Circular No. 7, issued by the Bureau of Mines contain many facts relating exclusively to explosives, and published for the use of shotfirers and mine officials. From these and other books one learns how to make an intelligent selection of explosives; what constitutes the determining factor of choice; what strength of detonators to use; the proper ratio between the length of the charge and the depth of the stemming; the maximum charge limit; the danger of firing two or more shots at the same time, in the same working place; and other equally important facts.

Concerning these facts the law gives no information. If these books be regarded as supplementing our mining laws, the shotfirer who cannot read is a constant menace to life and property when on duty in the mine. It is in raising not lowering standards of competency that the path to safety lies.

Again, the law mentions no qualifications as to citizenship on the part of a shotfirer and yet, in every other field of endeavor where the welfare and the lives of many are dependent on the judgment and the work of a few, citizenship, character, age, skill, and experience are fundamental requirements.

These are a few of the immediate qualifications of competency that should be required by law of every shotfirer, before he is permitted to be employed in that capacity. Too often, however, as our own experience has taught us, it takes a long time to have laws enacted to meet even an urgent popular demand. However, pending our efforts to secure legislation insuring the examination and certification of shotfirers, the plan might be tried that has worked well in other activities of mining; namely, undertaking first-aid and mine-rescue work.

For this commendable work the

Bureau of Mines has not only trained thousands of men, but has prepared textbooks for those taking these courses. For the work of training shotfirers the means are already provided. Numerous textbooks on explosives and blasting, prepared by some of the Bureau's engineers have been in existence for several years.

All other necessary equipment are in the possession of the Bureau; and it has in its employ experienced lecturers and demonstrators who could, in this as in other fields of mining, by means of short intensive courses in the different branches of shot-firing, instruct and train within a short time a sufficient number of men to meet the present urgent demand for competent men.

There may be difficulties in the way of carrying out this plan; but its discussion, in the columns of *Coal Age*, may lead to the removal of these difficulties or to the suggestion and adoption of a simpler and better plan.

ALEXANDER WAUGH.

Finleyville, Pa.

Things That Are Wrong

Recent mine disasters call attention to need of greater care in various ways —Mining laws often not progressive —Lack of sufficient co-operation among mine officials a cause of danger.

THE columns of *Coal Age* have recently cited instances of disasters that have caused the death of twenty-five men in Pennsylvania and nine in Kentucky mines. The records of these happenings cause us to think, with deep regret, how such disasters might have been avoided and lives saved.

Not long ago, in a brief article in *Coal Age*, I stated that most of these accidents in mining were the result of criminal negligence on the part of someone. I want, now, to emphasize that remark without attempting to place the blame on any particular person but, rather, on the permitting of customs and methods that can and ought to be improved.

SEEK TO ELIMINATE DANGERS

My thought is that when we give more attention to eliminate customs and methods that are dangerous, and endeavor to ascertain what is wrong in our present system, and do everything in our power to improve conditions and insure safety in the mines, we will abandon the prevailing idea that mine disasters are a "part and parcel of the industry."

We will find there are several causes that lead to unsafe conditions and must be removed before we can guarantee safety in mining. Allow me to mention one or two things that, to my mind, are wrong and should be remedied in the interest of safety.

One point has reference to the Bituminous Mine Law of this state, relating to the required qualifications of certified mine foremen. The law states that candidates for a certificate of competency must have five years' experience, "as miners or mining engineers or men of general work inside of the mines of Pennsylvania." (Art. 24, sec. 4).

Now, why does the law restrict the experience to that acquired in the mines of this state. Let some man who is fully qualified in mining matters come from another state where he may have served as mine inspector, or held a responsible position in mining, a number of years, and we are ready to crucify him.

LAW FAILS TO RECOGNIZE EXPERIENCE GAINED IN OTHER STATES

Before such a man can become eligible to a mine-foreman's position, or even hold the position of fireboss, he must serve at least five years in a Pennsylvania mine, unless he is fortunate enough to be considered, by some operator, as equally competent with a certified man and is appointed to one of these positions under the revised certificate law.

Our law, in this regard, does not appeal to me as progressive. It does not recognize the value of men whose experience has been gained in other fields. A man may hold a certificate of competency in another state, but it becomes of no value to him in Pennsylvania. The tendency is to keep many experienced men from seeking positions in the state.

Another condition that invites disaster in mines but one over which we have less control, is the habit that prevails very widely among miners of considering themselves as good as the mine foreman over them. A large number of miners think they know better than the boss and are prone to disobey the instructions given them.

MINE OFFICIALS MUST CO-OPERATE

The same is true of some underofficials, assistant foremen and firebosses. In other words, there is a lack of co-operation on the part of these men. They are what I call "knockers." Many a time I have heard an assistant foreman speak of his superior in office, in a manner to show that he was an assistant only in name.

If we are to avoid mine disasters, there must be co-operation on the part of all mine officials and the men; all must pull together. Let no one aspire to a position that he is not competent to fill. He will only injure himself and endanger the mine in his charge.

In our mines, we have an abundant supply of air for ventilation and whenever I hear of a mine explosion I cannot but think that the lack of proper ventilation was the real cause. Perhaps, the plan may have been good but the circulation not properly carried out by all concerned.

Some one asked me not long ago what was the meaning of "Safety First." My reply was, "The practice of Safety First involves being sure before you act." Let these oft-repeated reports of mine explosions warn each of us that we must take time to consider what it means to be safe.

Parnassus, Pa. C. W. ATKINS.

Foreman Supreme in the Mine

Room for improvement in mine foremen — Lack of early education a handicap—Authority supreme below the grassroots.

MANY interesting points have been brought out in the letters referring to the relation of the mine foreman to his superintendent. The whole trend of the discussion points to an increased interest in progressive management in mining.

In these days when the demand for coal is slack and the high prices paid for mining and mine supplies leaves but little, if any, margin above the cost of production, the question of progressive management is most important.

ROOM FOR IMPROVEMENT, BECAUSE OF HANDICAP OF MOST FOREMEN

I quite agree with a former writer in *Coal Age*, who expressed the idea that mine officials compared favorably with those in other industries. Still, I believe there is room for improvement. The question in my mind is: Where a mine official is not progressive, how can he be made so?

Speaking of the mine foreman, he is the man responsible for the production of coal in the mine. To my mind, take them as a class, mine foremen are sadly handicapped in more ways than one. On this account, we must not blame a foreman too harshly if he appers narrow minded or set in his way when he believes it is right.

As we all know, most mine foremen entered the mines as trapper boys, or as helpers for their fathers or older brothers, at an early age. For this reason, the education of the average foreman, today, is limited.

Again, we know that the large majority of these officials are overworked. In their desire to produce a large output of coal at a low cost, they are assuming heavy burdens that demand their time, night and day, with little cessation or relief.

FOREMAN A SUPERMAN

Not only must the foreman of a large mine watch the ventilation and oversee the men working in their places; but he must plan for the future, study the development of the mine, foresee the troubles that are in store for any lack of watchcare or judgment on the part of himself and his assistant. Were he not a superman and ambitious to make good for his company, the mine foreman would break down under his burden.

With another writer, I hold that the authority of a mine foreman should be supreme underground; or as someone has put it, "supreme below the grassroots." If the foreman is not big enough to wield this authority get some one who is.

Being in charge of all labor in the mine, the foreman should be left alone in dealing with his men. Being responsible for maintaining the daily output of coal, he should have unlimited control of all operations underground.

When it is found he does not fill the bill get some one who will; but give him every chance and do not judge his failures harshly.

There are, I regret to say, instances of where mine foremen show a lack of interest in their work. A foreman may assume a wrong attitude toward his men, or display a want of tact and fail to get the work out of them for which they are paid. There are foremen who will lose their temper and bawl men out when something goes wrong; though the chances are the foreman is himself to blame for not giving the men the necessary instructions or providing proper tools and supplies for their work.

MUST INSPIRE HIS MEN

By reason, or cajolery if necessary, the foreman must inspire his men with action. He must know what he wants a man to do, and tell him how the work can be best performed, so that the man will labor intelligently and show a greater willingness to obey his instructions.

Leadership requires personality, patience and tact, together with regard for the well-being of one's men. More than anything else, there is required a good knowledge of human nature and a willingness to put oneself in the other man's place; in other words, to view things from his standpoint.

Allow me to say in closing, that a practical mining experience of, at least five years, I believe is necessary before a man is able to properly direct others in that work. There must be cooperation between all mine officials; although, as I said before, the foreman's authority underground must be supreme, provided his qualities come up to the standard.

Altoona, Ala. JOHN W. JONES

Reasons Why It Is Safer to Seal Abandoned Areas

Cause for alarm when large abandoned areas are left open — Accumulated gases may explain many mine explosions.

ONE writer, in *Coal Age*, has given his verdict against sealing off an abandoned area, chiefly because of the liability of spontaneous combustion taking place owing to the heating of the gob.

In my experience where such heating has been observed on one end of a gob area and the management has decided to seal off the openings at that point, the result has been to improve the conditions at once, and no danger has been experienced from the cutting off of the circulation by the building of the seals.

It is my belief that there is more cause for alarm when a large abandoned area is left exposed than when it is sealed off by building good concrete stoppings in all the openings. I have known of cases where drillholes have been sunk from the surface to act as bleeders; because the management became alarmed in regard to what might be the condition existing behind the seals.

Consider, for a moment, what may result from a slight explosion taking place in the live workings lying beyond a large abandoned area that has been left unsealed. The condition of this area in respect to gas and dust may be such as to greatly augment the force of the explosion, which would otherwise be only a local affair but is now extended throughout the mine.

This, in my opinion, may have occurred in some of our large explosions, in the past, and is an argument in favor of sealing off such areas and allowing no connection between them and the live workings. I have no hesitation in saying that the sealing off of many large abandoned areas, in our Pennsylvania mines, would be a step taken in the right direction.

The sealing off of these areas would not only reduce the liability to extending a local explosion of gas or dust throughout the mine; but would have the effect of assisting the ventilation of the live workings, by confining the air current to the proper roads and air-courses. Less power would then be required to produce the same air, which would mean a considerable saving in the cost-sheet.

In many instances, there are headings that act as bleeders of old gobs, and it is clear that the cost of a few seals to prevent this will more than offset the extra cost of ventilation in such mines. Of course, during the drawing back of pillars when a gob is in its making, such a condition cannot be avoided, as the section cannot be sealed until it is finally abandoned.

There are doubtless other benefits to be derived from sealing off old workings, which can only be realized fully by those who favor this practice. Although sealing is becoming more and more essential each day, there will still be those who cannot be convinced that it is the safest method to pursue.

Gans, Pa. R. W. LIGHTBURN.

Inquiries Of General Interest

Effect of Exhausting or Blowing on Pumping

Pump Located at Foot of Slope Pitching 30 Deg.—Water Gage 1 in. at Pump, on Intake When Fan Is Exhausting —What Will Be the Effect When Fan Is Blowing?

HERE is a problem that I would like to see answered in *Coal Age:*

What is the theoretical lift of a pump under the following conditions: The pump is located on the intake airway, 750 ft. from the surface. The sump is on the return airway and 1,200 ft. from the fan. The quantity of air passing on the intake when the fan is exhausting is 73,200 cu.ft. per min., while the quantity measured on the return is 76,800 cu.ft. per min. These measurements are taken on the intake and return airways, respectively, at a point near the location of the pump. The water gage reads, one inch at this point. Both airways are 10 ft. high and 14 ft. wide, being driven on a slope pitching 30 deg. The question I wish to ask is, What difference will it make on the lift of the pump when the fan is forcing or blowing air into the mine instead of exhausting the air, as at present? DAVE HUNTER.

Washoe, Mont.

It is impossible to form an intelligent judgment of the situation, in this case, from the description and data given. If it is assumed that the pump is located 750 ft. from the surface, as measured on a 30-deg. slope, the discharge head is one-half this amount or 375 ft., to which must be added the friction head depending on the quantity of water the pump is to handle and the size of the discharge pipe reaching from the pump to the surface.

From the data given, however, there is no means of determining the present lift of the pump. The sump is said to be 1,200 ft. from the fan, supposedly located on the surface; but it cannot be assumed that the sump drained by this pump is 1,200 — 750 = 450 ft. further down the slope, as that would far exceed the possible lift of the pump under any conditions.

It is reasonable to assume that the pump is located at the foot of the slope and the sump some distance back in the workings, at about the same elevation. On this assumption, the question is, What would be the effect on the suction lift of the pump caused by changing the circulation in the mine, from the exhaust to the blowing system? In reply to this question, the only data of value is the statement that the water-gage reading at the pump is 1 in. when the fan is exhausting.

Disregarding the other data as having little or no bearing on the effect of the proposed change, it can be said that, when the fan is exhausting, the mine pressure (as indicated by the 1 in. of water gage) is below that of the atmosphere and, when blowing, it will be the same above the atmosphere. This makes the difference in pressure, 2 in. of water gage, or $2 \times 5.2 = 10.4$ lb. per sq.ft.

Evidently, the difference in suction head, or the lift of the pump due to this change, will be the same as the difference in water-gage reading, or 2 in. In other words, by changing the action of the fan, from exhausting to blowing, the total head under which the pump must operate will be decreased by 2 in., which is so small relatively as to be inappreciable. The increased mine pressure when the fan is blowing acts to assist the work of the pump, by decreasing the effective head.

The given reading of the barometer (25 in.) would indicate that this mine is located at an elevation of a little less than 5,000 ft. above sea level. At that elevation, the practical lift of a pump will not much exceed $0.9 \times 25 = 22.5$ ft. The size of the airways and the quantity of air in circulation have no bearing on the problem.

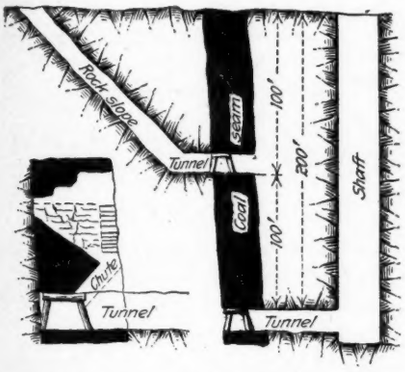
Examination Questions Answered

Miscellaneous Examination Questions

(Answered by Request)

QUESTION—*Explain briefly two ways of opening a vertical seam of coal and state, in a few words, the general plan by which such a seam can be worked with safety.*

ANSWER—As shown in the accompanying figure, a vertical coal seam can be reached through a rock slope and

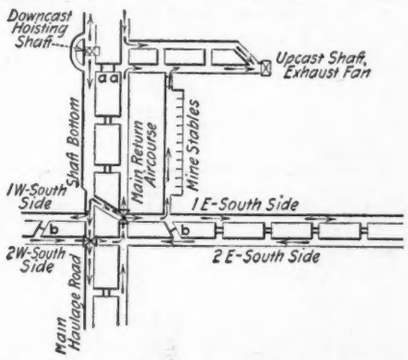


cross-tunnel; or a shaft can be sunk at a short distance on the side of the seam where the inclination approaches the shaft. At different depths, cross-tunnels are driven from the shaft to the seam, as shown in the figure. In either case of approach, levels are driven in the seam to the right and left of the cross-tunnel. When this has been done, the coal, in each lift lying above the gangway level, is worked out by driving chutes up from the level, on a proper loading angle, and upraising in the seam, after the manner of overhead stoping. A manway is maintained, by strong timbers, up one side of each chute. In cutting out the coal, the miners stand on the loose coal that is permitted to fill the chute. This is shown in the small detailed section in the lower left-hand corner of the figure.

QUESTION — *Explain how you would locate an underground stable, in a shaft mine, and ventilate the same, having in mind the rescue of the mules in case of emergency.*

ANSWER — In order to enable the ready rescue of the mules, in a shaft mine, in case of an explosion or mine fire making this necessary, it is important to locate the stable in close proximity to a shaft or other means of egress. In the accompanying figure, the mine stables are shown as located close to the shaft bottom and between the main hoisting shaft, which is the downcast for the mine, and the fan shaft or upcast, the mine being ventilated on the exhaust system. This stable is a wide opening driven between the first pair of south entries off the main heading, and the entries connecting the two shafts.

As shown in the figure, two air-bridges are built where the south en-

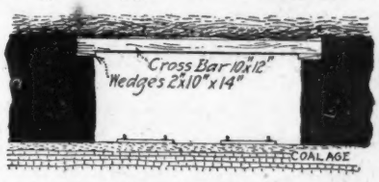


tries leave the main headings (one pair running east and the other west), giving to each a separate air split. As indicated by the arrows, the stables are ventilated by a scale of air taken from the intake air-course or the 1 E-S entry. After going through the stable, this air passes directly to the upcast shaft and is carried out of the mine. Double doors having regulator openings in each door are provided at the return end of the stable, as shown in the figure. Also, double doors are provided at the foot of the main hoisting shaft, between the main intake and haulage road and the main return air-course. Single doors are shown in the crossover near the mouth of each pair of cross-entries.

The stable and its furnishings are constructed wholly of incombustible material. The floor is concrete and the walls coated with a good covering of gunite and whitewashed. The stable is well drained. In case of accident in the mine, making it necessary to remove the mules for safety, they are easily accessible from either shaft.

QUESTION — *Explain and show by sketch how you would timber a double track parting so as to avoid the use of center posts for the support of the collars between the tracks.*

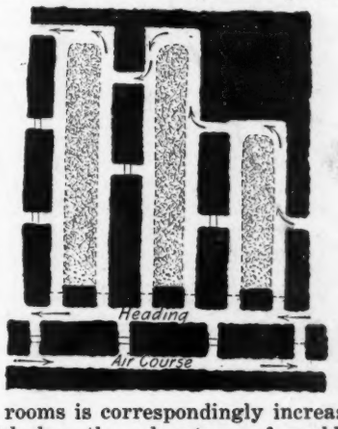
ANSWER—Heavy crossbars should be used and supported in hitches cut in the rib on either side of the parting, provided the coal is hard and will afford good support to the timber. One



of these hitches is cut large enough to allow one end of the timber to be inserted first, and the other end is then slid into the hitch in the opposite rib, which must be cut long enough to permit this to be done. When the timber is in position it is securely wedged by driving double wedges beneath it, as shown in the figure.

QUESTION—*What are the conditions that suggest the driving of double rooms, there being a track on each side of each room, with the gob stored in the center between the tracks?*

ANSWER—This is a common practice in some districts where the roof conditions permit of a wide opening and the coal is cut with machines. The arrangement is shown in the accompanying figure. One advantage afforded is a greater length of breast to be cut without moving the machine to another room. The width of pillar separating



the rooms is correspondingly increased, which has the advantage of enabling the drawing back of the pillars by machines to better advantage than is possible with narrower pillars.

Under favorable conditions where the roof pressure it not too great, it is possible to make the cut on the end of the pillar. The coal, after being mined, is then loaded out on the track on each side of the pillar, which affords good loading conditions. Under less favorable conditions the pillars must be cut on the ribside, either by slabbing from breakthrough to breakthrough, or by cutting through the pillar a few yards back from the end and removing the remaining stump

Freight Loadings Average 150,000 Cars Per Day During Week Ended June 3

LOADING of revenue freight during the week ended June 3 totaled 750,645 cars, compared with 821,121 cars during the previous week, or a decrease of 70,476 cars. This reduction was due to the observance of Memorial Day on May 30. Comparisons showed that the average daily loading during the week of June 3 was 150,000 cars, while that for the preceding week was 137,000 cars. Compared with the corresponding week last year, the total for the week was an increase of 56,742 cars.

Coal loadings amounted to 86,626 cars, a decrease of 4,744 compared with the previous week and a decrease of 49,741 compared with the same week last year. It also was a decrease of 81,393 compared with the same week in 1920. Coke, with a total of 8,927 cars, showed an increase of 76 cars over the week before. This also was an increase of 4,307 over the corresponding week in 1921 but a decrease of 3,066 compared with the corresponding week in 1920.

Cars idle because of business conditions numbered 480,266 on May 31, compared with 504,702 on May 23, or a reduction of 24,436. Surplus coal cars in good order numbered 195,439, a reduction of 13,252 since May 23. Surplus coke cars totaled 5,275, or 171 less than on May 23.

Coal Produced at Commercial Mines in the United States in 1920*

(Excluding Product of Wagon Mines)

State	Loaded At Mines For Shipment (Net Tons)	Sold To Local Trade And Used By Employees (Net Tons)	Used At Mines For Steam And Heat (Net Tons)	Made Into Coke At Mines (Net Tons)	Total Quantity (Net Tons)	Total Value	Average Value Per Ton	Number of Employees: Underground—Miners Loaders, Etc.	Underground—All Others	Surface	Total	Average Number Of Days Worked
Alabama	14,603,143	352,196	481,727	703,033	16,140,099	$58,637,000	$3.63	13,647	6,708	5,185	25,540	247
Alaska	58,522	128	2,461	.....	61,111	356,000	5.82	85	20	102	207	240
Arkansas	1,968,916	11,196	70,484	.....	2,050,596	9,328,000	4.55	2,390	964	612	3,966	176
California and Idaho	208	2,540	5	.....	2,753	12,000	4.23	5	3	2	10	181
Colorado	11,249,746	450,969	291,522	281,988	12,274,225	42,817,000	3.49	7,543	3,462	2,706	13,711	255
Georgia	15,961	791	3,600	29,804	50,156	251,000	5.00	69	28	51	148	294
Illinois	82,510,029	3,736,533	2,384,331	.....	88,630,893	273,140,000	3.08	53,363	23,630	10,091	87,084	213
Indiana	27,367,568	988,968	734,049	.....	29,090,585	91,784,000	3.16	18,593	8,329	4,233	31,155	192
Iowa	6,899,214	702,187	173,515	.....	7,774,916	30,606,000	3.94	7,677	3,080	1,148	11,905	250
Kansas	5,504,816	165,162	168,430	.....	5,838,408	22,504,000	3.85	5,827	1,762	1,395	8,984	204
Kentucky	33,334,161	1,050,196	697,434	446,971	35,528,762	145,929,000	4.10	26,006	14,030	9,416	49,452	182
Maryland	3,887,333	101,311	41,595	.....	4,030,239	18,607,000	4.62	3,283	1,347	918	5,548	207
Michigan	1,386,686	13,481	87,598	.....	1,487,765	7,337,000	4.93	1,332	595	227	2,154	261
Missouri	4,722,598	406,318	137,649	.....	5,266,565	21,747,000	4.13	4,842	2,023	1,973	8,838	233
Montana	4,079,281	149,816	174,769	.....	4,403,866	13,890,000	3.15	2,304	1,120	780	4,204	250
New Mexico	3,147,268	43,376	38,852	453,944	3,683,440	13,568,000	3.68	1,858	1,082	798	3,738	302
North Carolina	8,660	.....	2,880	.....	11,540	81,000	7.04	25	15	10	50	288
North Dakota	725,289	144,757	37,579	.....	907,625	2,618,000	2.88	526	227	357	1,110	218
Ohio	41,757,891	2,689,011	828,522	767	45,276,191	172,236,000	3.80	29,938	12,124	8,795	50,857	188
Oklahoma	4,582,437	53,902	193,949	.....	4,830,288	23,205,000	4.80	4,415	2,463	1,366	8,244	217
Oregon	12,980	1,609	6,128	.....	20,717	93,000	4.47	34	22	29	85	307
Pennsylvania (bituminous)	134,382,063	6,139,442	3,508,576	24,053,766	168,083,847	627,420,000	3.73	98,540	45,336	30,094	173,970	244
South Dakota	232	12,545	.....	.....	12,777	46,000	3.60	22	15	10	47	133
Tennessee	5,979,346	136,423	159,461	310,398	6,585,628	26,361,000	4.00	6,491	2,736	2,126	11,353	234
Texas	1,575,709	5,523	33,783	.....	1,615,015	6,061,000	3.75	1,882	691	377	2,950	242
Utah	5,454,967	57,830	104,819	387,583	6,005,199	19,350,000	3.22	2,421	1,138	945	4,504	252
Virginia	9,219,622	298,973	103,012	1,622,499	11,244,106	44,579,000	3.96	5,937	4,616	3,457	14,010	262
Washington	3,466,784	87,663	150,770	47,876	3,753,093	14,544,000	3.88	2,387	1,579	1,028	4,994	260
West Virginia	83,199,005	2,946,638	1,035,460	2,269,604	89,450,707	386,900,000	4.32	50,236	32,657	20,057	102,950	198
Wyoming	9,258,825	121,451	242,995	.....	9,623,271	28,716,000	2.98	3,982	2,350	1,447	7,779	264
Total bituminous	500,359,260	20,870,935	11,895,955	30,608,233	563,734,383	$2,102,723,000	$3.73	355,660	174,152	109,735	639,547	220
Pennsylvania (anthracite)	76,844,055	2,896,502	9,857,692	.....	89,598,249	434,252,000	4.84	63,353	37,687	44,015	145,055	271
Grand total	577,203,315	23,767,437	21,753,647	30,608,233	653,332,632	$2,536,975,000	$3.89	419,013	211,839	153,750	784,602	230

* Compiled by U. S. Geological Survey.

Coal Produced in the United States in 1920*

(In Net Tons)

State	Small Mines: Loaded For Shipment	Small Mines: Sold To Local Trade	Small Mines: Total Quantity	Small Mines: Estimated Total Value	Total, including both Commercial and Small Mines: Loaded At Mines For Shipment	Total: Sold To Local Trade And Used By Employees	Total: Used At Mines For Steam And Heat	Total: Made Into Coke At Mines	Total Quantity	Total Value
Alabama	154,000	.....	154,000	$773,000	14,757,143	352,196	481,727	703,033	16,294,099	$59,410,000
Alaska	.....	.....	.....	.....	58,522	128	2,461	.....	61,111	356,000
Arkansas	51,000	2,000	53,000	264,000	2,019,916	13,196	70,484	.....	2,103,596	9,592,000
California and Idaho	.....	.....	.....	.....	208	2,540	5	.....	2,753	12,000
Colorado	1,000	3,000	4,000	12,000	11,250,746	453,969	291,522	281,988	12,278,225	42,829,000
Georgia	.....	.....	.....	.....	15,961	791	3,600	29,804	50,156	251,000
Illinois	64,000	30,000	94,000	369,000	82,574,029	3,766,533	2,384,331	.....	88,724,893	273,509,000
Indiana	248,000	12,000	260,000	1,083,000	27,615,568	1,000,968	734,049	.....	29,350,585	92,867,000
Iowa	30,000	9,000	39,000	188,000	6,929,214	711,187	173,515	.....	7,813,916	30,794,000
Kansas	82,000	6,000	88,000	419,000	5,586,816	171,162	168,430	.....	5,926,408	22,923,000
Kentucky	131,000	31,000	162,000	647,000	33,465,161	1,081,196	697,434	446,971	35,690,762	146,576,000
Maryland	28,000	7,000	35,000	208,000	3,915,333	108,311	41,595	.....	4,065,239	18,815,000
Michigan	.....	2,000	2,000	9,000	1,386,686	15,481	87,598	.....	1,489,765	7,346,000
Missouri	89,000	14,000	103,000	483,000	4,811,598	420,318	137,649	.....	5,369,565	22,230,000
Montana	3,000	7,000	10,000	33,000	4,082,281	156,816	174,769	.....	4,413,866	13,923,000
New Mexico	.....	.....	.....	.....	3,147,268	43,376	38,852	453,944	3,683,440	13,568,000
North Carolina	.....	.....	.....	.....	8,660	.....	2,880	.....	11,540	81,000
North Dakota	21,000	20,000	41,000	106,000	746,289	164,757	37,579	.....	948,625	2,724,000
Ohio	497,000	105,000	602,000	2,845,000	42,254,891	2,794,011	828,522	767	45,878,191	175,081,000
Oklahoma	18,000	1,000	19,000	90,000	4,600,437	54,902	193,949	.....	4,849,288	23,294,000
Oregon	.....	.....	.....	.....	12,980	1,609	6,128	.....	20,717	93,000
Pennsylvania (bituminous)	2,363,000	161,000	2,524,000	15,211,000	136,745,063	6,300,442	3,508,576	24,053,766	170,607,847	642,630,000
South Dakota	.....	.....	.....	.....	232	12,545	.....	.....	12,777	46,000
Tennessee	76,600	200	76,800	417,000	6,055,946	136,623	159,461	310,398	6,662,428	26,778,000
Texas	.....	.....	.....	.....	1,575,709	5,523	33,783	.....	1,615,015	6,062,000
Utah	.....	2,000	2,000	9,000	5,454,967	57,830	104,819	387,583	6,005,199	19,350,000
Virginia	134,200	300	134,500	867,000	9,353,822	299,273	103,012	1,622,499	11,378,606	45,446,000
Washington	4,000	.....	4,000	16,000	3,470,784	87,663	150,770	47,876	3,757,093	14,560,000
West Virginia	513,000	7,000	520,000	3,145,000	83,712,005	2,953,638	1,035,460	2,269,604	89,970,707	390,046,000
Wyoming	6,000	1,000	7,000	24,000	9,264,825	122,451	242,995	.....	9,630,271	28,741,000
Total bituminous	4,513,800	420,500	4,934,300	27,218,000	504,873,060	21,289,435	11,895,955	30,608,233	568,666,683	$2,129,933,000
Pennsylvania (anthracite)	.....	.....	.....	.....	76,844,055	2,896,502	9,857,692	.....	89,598,249	434,252,000
Grand total	4,513,800	420,500	4,934,300	$27,218,000	581,717,115	24,185,937	21,753,647	30,608,233	658,264,932	$2,564,185,000

* Compiled by U. S. Geological Survey.

With Superior Product, Australia Expects To Recover Coal Trade from Japan

By Randolph Bedford

AUSTRALIA'S export coal trade received a shock from the war from which it has not yet recovered, scarcity of shipping being one contributing cause and the war embargo on coal exports the other. Japan, with an inferior coal, has obtained the trade which the superiority of the Australian product must soon recover. Against that a slackening factor will be the increased export of American coal and the development of Chinese mining.

About 30 per cent of the total output of New South Wales coal is machine cut. There are 176 electric- and air-driven machines cutting 2,506,000 tons, according to the last yearly figures available, of which 1,846,000 tons is electric-machine cut, and 660,000 tons is cut by air-driven machines. About 17,000 men are employed in these New South Wales mines and the number, as in Queensland, must increase greatly as Australian collieries win back their Pacific Ocean markets. Japanese coal is no longer cheap, for its poor quality can never be bettered. It is in shipping space that Australia is poor and in transportation facilities America and Japan are rich. A representative analysis of Maitland coal shows: Moisture, 2.30 per cent; volatile hydrocarbons, 35.62 per cent; fixed carbon, 58.40 per cent; ash, 3.25 per cent; sulphur, 0.42 per cent. As a sample of the Ipswich field, Queensland, the analysis of the Aberdare seam may be contrasted. It shows: moisture, 2.2 per cent; volatile hydrocarbons, 28.4 per cent; fixed carbons, 62.1 per cent; ash, 7.3 per cent.

Queensland Operates Its Own Coal Mines

The State Government of Queensland, operating, as it does, more than 6,500 miles of railway, is a big coal user and has therefore established its own mines. Of these, Baralaba is a steam anthracite of good quality worked from a seam 8 ft. in thickness; the Styx River seam is from 4 to 10 ft. in thickness and of a quality that has proved highly satisfactory to the Australian Navy. The Bowen field—also operated by the state—will soon be equipped to produce 1,000 tons daily. Comparative analyses of these coals and of New South Wales and Ipswich coals are:

	Moisture	Volatile Hydro-Carbons	Fixed Carbons	Ash	Calorific Value, B.t.u.
Bowen seam	1.0	19.9	66.8	12.3	13,316
Bowen Garrick Seam	0.60	23.45	67.70	8.5	13,973
Styx River	3.0	28.0	60.7	8.3	13,387
Baralaba N.S.W.	3.5	10.1	74.9	10.4	13,860
New Castle coal measures	2.1	36.1	53.27	8.71	.....
Southern (N.S.W.) measures	0.71	23.65	63.98	11.66	.....
Western (N.S.W.) measures	2.5	32.31	53.08	12.56	.....
Ipswich coal field, Queensland	1.50	27.0	58.50	14.0	.....

The field of Blair Athol has but one drawback for oversea shipping, it being 240 miles from the riverport of Rockhampton, with which it is connected by railroad. The Blair Athol coal measures carry three profitable seams—the top or "Little Seam" of bright bituminous coal 7 ft. in thickness and one 2-in. parting in the middle of it. Below this, at a depth varying from 3 ft. to 30 ft., is the Big Seam, which has a maximum thickness of 91 ft. of clean coal. On the southern edge of the coal basin it is 40 ft. thick and two miles north it is 72 ft. thick in the Newcastle east shaft.

Well-defined bedding planes throughout the seam are condusive to easy mining and a characteristic of this seam is the absence of vertical planes. It is a strong, hard coal and requires explosives; and the seam produces a high percentage of round coal.

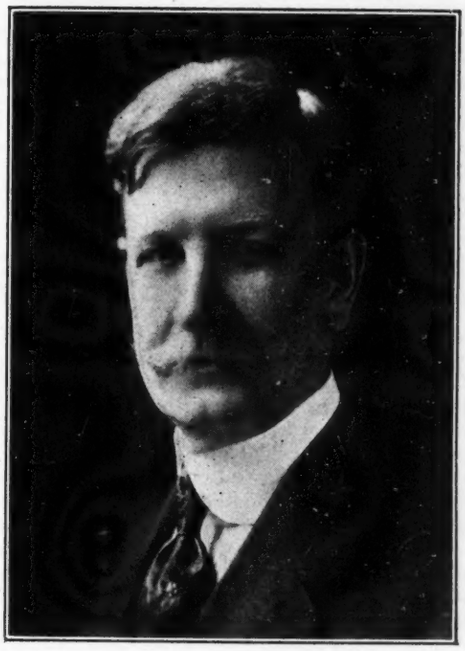
The average of fourteen analyses taken by 5-ft. sections through the full seam and determined by the Australian Naval Department showed: Moisture, 9.0 per cent; fixed carbon, 59.38 per cent; volatile hydrocarbons, 25.26 per cent; ash, 6.32 per cent; sulphur, 0.35 per cent. The coal is dull and lusterless; it is non-coking, practically smokeless and burns to a fine white ash without clinker. It is hard and friable and ships well.

The third seam is 35 ft. below the Big Seam and is 7 ft. thick, with three small bands in it. The present market is purely local and the output about 200,000 tons a year. While it remains 740 miles from a deep-sea port it can have little effect on export trade but a shorter railroad is proposed to meet a deep-sea port in 150 miles.

For value and shipping facility, however, there is nothing to compare in Northeast Australia with the State coal mines of Bowen. The port is but 18 days from San Francisco and the low percentages of ash and moisture and the high calirific values stamp it as a field that must be a great factor in the industrial development of the Pacific.

Harrington to Be President of American Society of Mechanical Engineers

JOHN LYLE HARRINGTON, of Kansas City, Mo., has been unanimously nominated as president of the American Society of Mechanical Engineers, succeeding Dean Dexter S. Kimball, of Cornell University. Mr. Harrington headed the ticket selected by the nominating committee of the society, whose report was presented at the spring meeting held in Atlanta, Ga., May 8 to 11. Mr. Harrington is a consulting engineer of national reputation and is a member of the firm of Harrington, Howard & Ash. Mr. Harrington and the other officers named will be elected by mail ballot of the society's membership and will take office at the close of the next annual meeting in New York City in December.



JOHN LYLE HARRINGTON

Mr. Harrington's nomination as president is subject to the outcome of a letter ballot but nomination usually is regarded as tantamount to an election. Next December Mr. Harrington will be announced president unless an extraordinary number of members write the name of a dark horse on the vacant space in their ballots.

Vice-presidents of the society were chosen as follows: W. S. Finlay, Jr., vice-president of the American Water Works & Electric Co., New York; William H. Kenerson, professor of mechanical engineering, Brown University, Providence, R. I.; Earl F. Scott, president and manager of Earl F. Scott & Co., Atlanta, Ga., and H. H. Vaughan, consulting engineer, of Montreal, Can., to fill the unexpired term of L. W. Strothn of Milwaukee, Wis.

These managers were selected: A. G. Christie, associate professor of mechanical engineering, Johns Hopkins University, Baltimore, Md.; James H. Herron, president of the James H. Herron Co., Cleveland, Ohio; Roy V. Wright, editorial department of the Simmons-Boardman Publishing Co., New York City.

William H. Wiley, president of John Wiley & Sons, Inc., New York, is continued as treasurer and the following will serve as delegates to the American Engineering Council:

John Lyle Harrington, chairman; L. P. Alford, editor of *Management Engineering*, New York; A. M. Greene, Jr., professor of mechanical engineering, Rensselaer Polytechnic Institute, Troy, N. Y.; Fred J. Miller, consulting engineer, New York; Max Toltz, mechanical engineer, of Toltz, King & Day, Inc., St. Paul, Minn.; Fred R. Low, editor of *Power*, New York; S. W. Stratton, director of the U. S. Bureau of Standards, Department of Commerce, Washington, D. C.; Edwards R. Fish, vice-president of the Heine Safety Boiler Co., St. Louis, Mo.; Edwin S. Katte, chief engineer of electric traction, New York Central Railroad Co., New York.

World's Coal Output in 1921 Was Nearly 200,000,000 Tons Less Than in 1920

WORLD'S coal production in 1921 dropped back to the level of 1909, according to the U. S. Geological Survey. The total output was 1,120,000,000 metric tons, a decrease of nearly 200,000,000 tons when compared with 1920. The chief factors in the decrease were the British miners' strike and, more important, a worldwide industrial depression. The following table shows the trend of production for the last 13 years:

WORLD'S COAL OUTPUT, 1909-1921, AND PERCENTAGE PRODUCED BY UNITED STATES
(In metric tons of 2,204.622 lb.)

Year	Production (in Part Estimated)	Per Cent Produced by United States
1909	1,110,000,000	37.5
1910	1,160,000,000	39.2
1911	1,189,000,000	37.9
1912	1,249,000,000	38.8
1913	1,342,000,000	38.6
1914	1,207,000,000	38.7
1915	1,189,000,000	40.6
1916	1,257,000,000	42.7
1917	1,325,000,000	44.6
1918	1,331,000,000	46.4
1919	1,168,000,000	43.1
1920	1,317,000,000	45.4
1921	1,120,000,000	40.0

NOTE—The figures for the years 1914-1918 in this table are revised materially from those hitherto published by the Geological Survey, to conform to more accurate reports from some of the countries affected by the war. They are still subject to revision.

Preliminary statistics of world coal production in 1921 issued by the Geological Survey are revised and amplified in the following tables. Returns have now been received from all the important coal-producing countries. The production in countries not heard from up to June 1, 1922, represents only about 4 per cent of the world's output, and an estimate for these countries has been included in the total. The margin of error in the total as now given does not exceed 2 per cent. Some of the figures shown are provisional and will be revised as final figures are received.

The term "coal" as used by the Geological Survey includes lignite, and the production for the world is simply the total of the quantities reported, without attempt to reduce inferior coals to an equivalent tonnage of coals of higher rank. When possible, however, lignite is shown separately from bituminous. The unit used is the metric ton of 2,205 pounds, the approximate equivalent of the long or gross ton.

COAL PRODUCED IN THE PRINCIPAL COUNTRIES OF THE WORLD IN THE CALENDAR YEARS 1919, 1920 AND 1921
(In metric tons of 2,204.622 lb.)

Country	1919	1920	1921
North America:			
Canada: Coal	9,756,019	11,812,871	10,636,471
Lignite	2,655,309	3,275,304	2,918,991
Greenland	2,160	2,308	2,200
Mexico	693,866	(a)	(a)
United States: Anthracite	79,915,483	81,282,000	79,400,000
Bituminous, Lignite	422,618,927	515,886,000	369,200,000
South America:			
Argentina	(a)	(a)	(a)
Brazil	(a)	(a)	(a)
Chile	1,334,789	1,060,585	(a)
Colombia	(a)	(a)	(a)
Peru	330,227	361,075	(a)
Venezuela	33,287	30,377	(a)
Europe:			
Austria: Coal	90,472	132,864	137,470
Lignite	2,006,773	2,408,865	2,398,284
Belgium	18,482,880	22,388,770	21,807,160
Bulgaria	577,739	757,250	750,000
Czechoslovak Republic: Coal	9,865,605	11,143,221	11,648,399
Lignite	17,081,208	19,943,258	21,050,712
France: Coal	21,546,000	24,300,000	28,240,887
Lignite	895,000	1,000,000	735,008
Germany: Coal	(b) 116,707,200	(b) 140,757,433	(b) 145,610,000
Lignite	93,645,500	111,634,000	123,011,000
Greece	182,951	182,880	134,000
Hungary	3,901,720	4,963,060	6,043,745
Iceland	390	.....	.....
Italy: Coal (c)	111,151	151,862	111,400
Lignite (c)	1,129,197	1,571,735	1,019,700
Netherlands: Coal (d)	3,540,064	4,115,629	4,167,960
Lignite	1,881,962	1,395,851	122,000
Norway	(a)	(a)	(a)
Poland	6,262,636	6,660,145	7,107,214
Portugal	146,341	169,165	(a)
Rumania	1,540,598	1,505,184	(a)
Russia	6,463,000	6,162,000	9,851,000
Spain: Coal	5,703,637	5,420,704	5,011,429
Lignite	539,872	552,425	408,684
Spitsbergen	(e) 88,776	(e) 120,000	(a)
Sweden	429,267	439,584	(a)
Switzerland	64,902	74,590	10,714
United Kingdom	233,467,478	233,216,222	166,997,000
Jugo-Slavia	2,497,394	3,274,324	(a)
Asia:			
British India	22,991,217	17,[illegible]	17,200,000
China	18,292,252	19,43[illegible]6	(a)
Chosen	223,078	( )	( )
Federated Malay States	194,363	251,[illegible]96	(a)
Indo-China	665,149	700,267	(a)
Japan (Inc. Taiwan and Karafuto)	32,703,338	30,819,898	24,500,000
Russia	1,836,000	1,537,000	2,384,100
Turkey	481,331	(f) 700,000	(a)
Africa:			
Algeria	7,419	7,793	(a)
Nigeria (southern)	140,057	183,013	(a)
Rhodesia (southern)	462,698	524,796	521,404
Tunis	36,551	31,000	(a)
Union of South Africa	9,313,232	10,408,497	10,331,886
Oceanica:			
Australia	10,736,321	13,176,426	13,073,845
British Borneo	(a)	(a)	(a)
Dutch East Indies	949,379	1,095,718	(a)
New Zealand	1,877,506	1,873,296	(a)
Philippine Islands	32,892	58,888	(a)
Totals	1,168,000,000	1,317,000,000	1,120,000,000

(a) Estimate included in total. (b) Includes Saar Basin. (c) Includes new provinces. (d) Includes slack. (e) Shipments to Norway and Sweden. (f) Estimate based on incomplete data.

THE MINER IS QUITE WILLING to take his pick, but insists that it be between shorter hours or at higher wages.—*Manila Bulletin.*

Bituminous Coal Loaded Into Vessels at Lake Erie Ports During Season to End of May*

(In Net Tons)

Ports	Railroads	1922 Cargo	1922 Fuel	1922 Total	1921 Cargo	1921 Fuel	1921 Total	1920 Cargo	1920 Fuel	1920 Total
Toledo	Hocking Valley	617,287	16,103	633,390	821,739	20,518	842,257	126,136	1,859	127,995
	Toledo & Ohio Central	.....	.....	.....	196,039	5,342	201,381	68,825	4,959	73,781
	Baltimore & Ohio	823,958	17,125	841,083	402,239	10,629	412,868	101,844	10,270	112,114
Sandusky	Pennsylvania	488,143	11,655	499,798	223,214	6,060	229,274	64,544	995	65,539
Huron	Wheeling & Lake Erie	7,612	334	7,946	424,250	11,132	435,382	301,890	25,451	327,341
Lorain	Baltimore & Ohio	17,820	3,353	21,173	625,935	24,727	650,662	387,512	43,496	431,008
Cleveland	Pennsylvania	43,358	6,704	50,062	512,323	20,143	532,466	38,664	6,522	45,186
	Erie	.....	.....	.....	126,769	4,260	131,029	.....	.....	.....
Fairport	Baltimore & Ohio	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ashtabula	New York Central	31,083	5,757	36,840	462,355	16,887	479,242	48,660	21,415	70,075
	Pennsylvania	28,342	2,113	30,455	532,897	17,128	550,025	51,344	16,138	67,482
Conneaut	Bessemer & Lake Erie	24,744	194	24,938	196,091	1,911	198,002	299,800	9,360	309,160
Erie	Pennsylvania	23,575	6,685	30,260	278,816	12,901	291,717	8,085	12,456	20,541
Totals		2,105,922	70,023	2,175,945	4,802,667	151,638	4,954,305	1,497,304	152,918	1,650,222

* Compiled by Ore & Coal Exchange, Cleveland, Ohio; H. M. Griggs, manager.

Retail Coal Men Unconditionally Agree to Cooperate in Hoover Price Plan

BY PAUL WOOTON
Washington Correspondent of *Coal Age*

THAT Secretary Hoover has entirely justified his position in the controversy with the retailers is the consensus of opinion in Washington and in the communications from all parts of the country reaching officials. The retailers have agreed unconditionally to co-operate and the inclination at the Department of Commerce is to let bygones be bygones.

An important conference between all factors concerned in the situation was held with Secretary Hoover on June 15. Those in attendance were:

J. G. Bradley, president, Elk River Coal & Lumber Co. C. E. Bockus, president, Clinchfield Coal Corp. A. W. Calloway, president, Davis Coal & Coke Co. E. E. White, president, E. E. White Coal Co. A. M. Ogle, president, Vandalia Coal Co. J. J. Tierney, vice-president, Crozer-Pocahontas Co. Roderick Stephens, chairman of board of directors of National Retail Coal Merchants' Association. J. Maury Dove, Jr., director, National Retail Coal Merchants Association. J. E. O'Toole, executive secretary, National Retail Coal Merchants Association. J. D. A. Morrow, vice-president of the National Coal Association. E. A. Holbrook, Acting Director of Bureau of Mines. George Otis Smith, Director of the Geological Survey. F. R. Wadleigh, chief of coal division, Department of Commerce.

After the conference Secretary Hoover made the following announcement:

The conferences with Mr. Stephens, of the Retail Association, and his colleagues and their collaboration in conferences with the operators' representatives have planed out all difficulties. Their association has shown its full desire to co-operate to protect the public the best we all can in a difficult situation.

It has been settled with the representatives of the retail association that they will co-operate to secure: That all coal be sold at cost, plus a reasonable selling charge; that in localities where bituminous coal is sold for household purposes, existing stocks, as of June 1, of unsold pre-strike and contract coal, be reserved for the smaller household trade and such coal be sold at prices based upon cost plus usual handling charges; except for the above coal, the retail prices to be based upon average purchase prices, with usual handling charges; that retailers co-operate to prevent rising mine prices by calling the attention of the administration to price demands out of line with the established bases; that retailers handle coal on straight lines from operator and wholesaler without speculative resales in the trade.

Operators who have had a regular, established retail clientele, whom they have supplied upon special terms of deliveries and prices, even without contract, should continue to do so; but this statement also implies that such retailers give such benefits to their customers, and further that such retailers can be expected to give assurance that they will continue their connection with the operator in the future.

Following the meeting emphasis was placed on the fact that larger consumers should buy coal at this time, when unsold surpluses exist at Virginia tidewater points and in Alabama. If that type of consumer would make his purchases now it would make for a better situation later in the season, when the demand from small consumers will enlarge.

The situation with regard to prices and with regard to co-operation among operators was set forth in the following statement:

At the conference today between Secretary Hoover, together with Dr. Smith, Director of the Geological Survey, and Mr. Holbrook, Acting Director of the Bureau of Mines, the representatives of the National Coal Association and the National Retail Coal Merchants Association, the following statement from the Secretary was agreed to:

"In the fields where a price basis has not yet been established (only 15 to 20 per cent of the total tonnage now being produced) I earnestly request that each operator immediately reduce his selling basis for spot coal to the Garfield price, including the standard selling expense, plus such additions for increased costs as can be justified in his individual case. The complexity of local conditions, due to the strike and the entrance of many snowbird mines, makes the establishment of maximum prices very difficult in many districts. This plan, if adhered to, should result in a reduction of prices in several districts of Pennsylvania and western Kentucky. I have some assurances that this basis will be accepted for Pennsylvania, and I hope western Kentucky will also fall into line.

"My proposal to operators on May 31 was 'that the Garfield prices for run-of-mine coal should be the basis for computing spot sales prices, with such adjustments as are necessary to include the wholesale selling costs, changed conditions at the mines and other factors that will be fair to the public and to the operators and will maintain production of coal. Any agreement to adhere to this is a moral agreement between each individual operator and myself.'

"In addition, I requested, upon the advice of the Director of the Geological Survey and the Bureau of Mines, and after discussion with operators, that certain maximums of additions for changed conditions shall not be exceeded; for instance, in the case of Alabama, a maximum price of 25c. below the Garfield scale. In Virginia, West Virginia, Tennessee and parts of Kentucky, where the Garfield prices varied widely from a range of $2.65 for domestic to as high as $4.35 for export coal (including 15 to 25c. selling commission formerly separately allowed under the Garfield scales), it was requested that the additions to the Garfield scale should not accrue to more than $3.50 per net ton f.o.b. run-of-mine and that the differential of the Garfield scale for lump coal should be adhered to, as these are more favorable to the householder than usual differentials.

"Owing to the persistent misstatement or misunderstanding of elements inside and outside of the industry, the impression has been given in some quarters that the maximums constitute minimum prices and offer reason for some occasional taking of advantage of such price basis. It is in the interests of the good repute of the industry, as well as that of the public, that the above formula for computing prices in relation to the Garfield scale should be conscientiously applied by all operators. There have been but few violations of the spirit of this arrangement in the districts mentioned, as witness telegraphic advices from Virginia, West Virginia, eastern Kentucky and Tennessee, showing that the prices for spot coal vary from $2.50 to $3.25, with an occasional price at the maximum, but with an average of about $3. At the same time more than half the tonnage is moving as contract coal at averages below $2.25. Alabama coal is being offered at from $1.82 to $2.10.

"Sporadic complaints of selling expense being added to net prices, in dealing with wholesalers, will be taken up in each individual case."

With regard to the attitude of the retailers, a prominent official comments as follows: "The retailers were the only branch of the coal industry that entered into conferences with Secretary Hoover in a spirit of criticism of other branches of the industry. Their attitude was in striking contrast with that of the wholesalers, who from the very start have given 100 per cent of co-operation. The retailers' position soon developed into one of criticism of Secretary Hoover himself. They charged that he is too friendly to the operators. There is some evidence, however, to support the charge that the attack on Secretary Hoover was planned in advance by his chief critic and was not based on any remarks by Secretary Hoover on lump coal in the Chicago domestic market. While this critic had the support of his associates at first, it was not long until they were very ready to draw away from him. The attack on Secretary Hoover's plan for keeping the coal situation in hand carries a 'made in Chicago' label. What is there to justify the throwing of this local issue money-wrench into a machine that otherwise would operate smoothly.

Vinton Colliery Co. Obtains Order Nullifying Miners' Injunction

JUSTICE KEPHART, of the Supreme Court of Pennsylvania, granted a supersedeas order at Ebensburg, Pa., June 17, on petition of L. I. Arbogast, controller and secretary of the Vinton Collieries Co., of Vintondale, nullifying the temporary injunction issued earlier in the day by Judge John H. McCann in Common Pleas Court on petition of Arthur Garfield Hays, of New York; John Brophy, president of District 2, United Mine Workers, and others against the collieries company, restraining the company from interfering with meetings of the Mine Workers at Vintondale.

While a meeting of miners was held at Vintondale Sunday night, June 18, under the protection of the temporary injunction, the supersedeas will prohibit further gatherings until the issue is finally settled. The writ in the latter case is returnable in Philadelphia on Saturday, June 24. Mr. Hays, Mr. Brophy and other officials of the mine workers' organization will be required to appear at that time to show cause why the supersedeas order should not become permanent.

After the meeting Brophy declared that "If occasion warrants we will hold another meeting at Vintondale, which is the battleground where the fundamental right of free speech and public assembly is being fought."

J. J. Kintner, District Attorney of Clinton County and leading attorney for the United Mine Workers of America in District No. 2, on Monday, June 12, presented to the court at Ebensburg a petition for the preliminary injunction, to be made perpetual after hearing of the facts, restraining the Vinton Colliery Co. from interfering with the business of the plaintiffs, among whom also appear the names of Attorney Julian Roseberg, of the Civil Liberties Union of New York City; Arthur Shields, a Chicago newspaperman; H. S. Cooney, taxi driver; Nathan Burch, a Vintondale barber, and J. D. Bennett, who is in the feed and produce business at Vintondale.

Commerce Commission Investigating Car Distribution to Bituminous Mines

THE Interstate Commerce Commission on June 19 instituted an investigation into the matter of the justness, reasonableness and lawfulness of the rules, regulations and practices governing the distribution of cars to coal mines, other than anthracite, for coal loading, and as to the justness, reasonableness and lawfulness of the ratings for such mines as the basis for the distribution of cars to such mines.

Mine ratings are the basis for the distribution of cars to coal mines for coal loading. A just and reasonable basis of mine ratings will therefore tend to make effective a just and reasonable distribution of cars to coal mines.

The Car Service Division of the American Railway Association, after collaboration with the important bituminous-coal loading railroads and the National Coal Association, has submitted to the commission a proposed revision of the rules now incorporated in what is known as Circular CS 31 (revised) and also has proposed rules for the rating of and car distribution to other than tipple mines loading bituminous coal.

The commission is informed that while representatives of the National Coal Association do not agree in every instance that the rules proposed embody all that they might desire, they join with the Car Service Division in recommending the revision for early promulgation in all cases, except the assigned car rule, which is rule 8. That rule is now the subject of investigation under No. 12530, In Re Distribution Among Coal Mines of Privately Owned Cars and Cars for Railroad Fuel, which now has been consolidated with this investigation.

The commission desires to give opportunity for full hearing and discussion by all the parties interested in the subject matter. The initial hearing has been assigned before Commissioner Aitchison at Washington, July 17, 1922.

It is understood that the National Coal Association will appear by counsel before the commission at this hearing.

Illinois-Wisconsin Dealers Support National Association in Dispute with Hoover

SECRETARY of Commerce Hoover is called upon to "adjust incorrect and misleading reports" concerning the position the retailers of the country have taken toward Mr. Hoover's price-regulation plan, in a resolution adopted last week at the annual convention of the Illinois and Wisconsin Retail Coal Dealers' Association. The convention was held at Lake Delavan, Wis. The association listened to an address on the value of associations by Homer D. Jones, president of the National Retail Coal Merchants' Association, and then took a stand backing up the national in its controversy with Mr. Hoover.

The resolution was based on the premises that Pocahontas and New River coals form a large part of the fuel used in domestic heating in Illinois and Wisconsin, that the price of those coals advanced $1.75 a ton as a result "of recent conferences between West Virginia operators and Mr. Hoover" and that the association believes this is not the time to countenance a radical advance in prices of coal to domestic consumers "either with or without governmental or quasi-governmental approval."

The resolution reads: "We heartily endorse the action of the governmental relations committee on the National Retail Coal Merchants' Association taken the past week in presentation of facts to Mr. Hoover and recommend that steps be taken by Mr. Hoover to adjust incorrect and misleading reports which appeared in the press concerning such presentation of facts, which reports were exceedingly detrimental to the consuming public as well as retail coal merchants, who have suffered thereby. And be it further resolved that it is the intent and desire to continue serving the coal-buying public to the best of our ability by preventing unjust retail advances in the price of household coal."

The Illinois and Wisconsin association chose these officers: President, R. H. Jones, of Kenosha, Wis.; vice-president, R. D. Hering, of Hinsdale, Ill.; treasurer, C. S. Dodge, of Monroe, Wis.; secretary, I. L. Runyan, of Chicago, Ill.; directors for three years, R. G. Wagner, Jr., of Urbana, Ill., and P. F. Irwin, of Madison, Wis. More than one hundred and fifty members of the association attended, making the convention the largest in years. The next convention also will be held at Lake Delavan.

Retailers Still at Odds with Hoover; May "Tell Public the Truth" Soon

HOMER D. JONES, president of the National Retail Coal Merchants' Association, said in Chicago Saturday that the controversy between Secretary of Commerce Hoover and his association is by no means settled, although the association still stands ready and willing to co-operate with Mr. Hoover if he will only let it. But when Mr. Hoover insists that "pre-strike" coal in dealers' hands be sold to small domestic consumers at pre-strike prices around Chicago he is asking for the impossible, according to Mr. Jones, for there is no more "pre-strike" coal left. The assumption that Chicago retailers suddenly boosted coal prices on stocks has vitally involved Chicago retailers and held them up to public scorn. This must be corrected, Mr. Jones says. Therefore the association is asking Mr. Hoover publicly to correct it.

"We are more than willing," said Mr. Jones, "to comply with Mr. Hoover's requests that retailers sell all coal at cost plus a reasonable charge for handling. We are more than willing to 'co-operate to prevent rising mine prices' and to 'handle coal on straight lines from operator and wholesaler without speculative resales,' but even for those few dealers in the land who have coal on hand which they bought before the strike it would be impracticable to maintain two prices for coal from the same yard, as Mr. Hoover suggests.

"What we insist upon is that operators quit taking advantage of the Hoover scale to boost every price right up to the limit for no reason at all except that such prices have 'government sanction.'"

An official of the Chicago retail association said the retailers of the country are preparing a program of publicity which is aimed to "tell the truth to the public" about the costs of mining coal and about the profits which operators are making right now at the expense of the people. He said the date for launching the campaign has not been set but that unless something arises to forestall the plan, the countrywide campaign will start about July 1.

Federal Council of Churches Asks Harding Aid to End Coal Strike

PRESIDENT Harding was asked on June 19 to take steps to end the coal strike in a joint appeal presented by the Commission on the Church and Social Service of the Federal Council of Churches. This is the first time, as far as is known, that representative organizations of Protestants, Roman Catholics and Jews have taken joint action in an industrial matter. The churches in their appeal asked the President to call a national coal conference, to get the facts of the coal industry through a governmental investigation and not to wait until the suffering women and children of the mining camps has become a national calamity.

The statement expresses gratification that the press as a whole has been usually successful in recording the facts in the strike and concludes with the following paragraph:

"We call upon our government, out of concern for the well-being of the nation as a whole, the health and comfort of the miners, and the preservation of the mining industry, to take immediate steps to bring the disputants together in order to secure a just settlement of the present strike and an organization of the coal industry on the basis of the maximum service to the nation. You, Mr. President, succeeded in bringing the nations together in conference to reduce armaments and the incitements to war. We respectfully urge that a national coal conference and a federal investigation of the coal industry would have far-reaching consequences in promoting domestic tranquillity and abridging the causes of industrial strife."

Eleventh Week of the Coal Strike

EDITORIAL REVIEW

RUMORS of an early settlement of the bituminous-coal strike persisted during the eleventh week of the controversy. These rumors apparently were founded on conversations emanating from eastern Ohio, where certain operators, lukewarm toward the district-settlement policy of other Ohio and the Pittsburgh operators, have encouraged the miners in the belief that within a short time operators representing sufficient tonnage to make it worth while could be assembled for a rump four-state conference. This talk made sufficient headway to encourage some of the minor officials of the union to promise the men resumption of work by July 1.

When this line of speculation became noised about, Illinois and Indiana en masse broadcasted statements to the effect that, however willing they may have been in April and possibly even in May to go into a four-state conference with all the regular bunch, they have now decided that under no circumstances will they do so. To all intents this leaves only one group, eastern and northern Ohio, as yet favorable to interstate negotiations and settlements.

The Northwest is the only section of the country that has begun to show any nervousness over the bituminous-coal situation. With three out of eight months of the Lake season gone and practically no coal moved to the Upper Lake docks, a Lake program of a million tons a week for fifteen to twenty weeks—a feat never before accomplished—begins to look like a necessity, and if the strike is prolonged until late in the summer, an impossibility. Aside from the Lake situation the condition of the country with respect to bituminous coal on July 1 will not be far from what may be described as normal with respect not only to production and distribution for the first half of the year but also as to stocks.

The number of non-union mines in Pennsylvania being started up is increasing, but with so few men that the tonnage has little influence on the country's total so far. One company, however, has succeeded in three weeks in raising its output from 500 tons to 4,000 tons per day. In the Kanawha field, union since 1912, 89 mines, about one-third of the total, have resumed production and in nearly every instance with the former union employees working on the Washington agreement scale of wages.

In Kansas, Missouri and Oklahoma reports from the mining fields show the strike to be "very satisfactory" from the viewpoint of the operators. Miners' local officers, under orders, it is said, from district officials, are seeking to make independent contracts. Operators refuse to make any such deals and are standing firm for conferences only with proper miners' union officials. It is reported also that Kansas state officials have conferred with local authorities in most of the mining regions, to make sure that proper protection is given all miners who resume work in any mines. Governor Henry J. Allen says 2,000 miners are working now and that 12,000 are still on strike.

The administration in Washington last week reiterated its policy of non-interference. Secretary Hoover has been so successful in putting over his program of holding down prices that the market is anything but active in the majority of fields at prices lower than those he considered adequate and satisfactory.

The refusal of the operators in western Kentucky to accept the maximum which Mr. Hoover prescribed is generally held in Washington to be a short-sighted policy. It is pointed out that while the existing temporary situation lasts they will be able to make large profits, but were any large proportion of the opertators to insist on taking every advantage of the emergency, it is believed in Washington that Congress would not be slow to carry into effect Senator Lenroot's suggestion that the government take over and operate enough mines in any particular district to supply the necessary demand at reasonable prices.

The Interstate Commerce Commission has made effective on one day's notice the application of the Louisville & Nashville R.R. to put into effect special rates to St. Louis and nearby points which will tend to attract to that center coal from Alabama and southwestern Virginia and thereby decrease the pressure on the Kentucky fields.

John L. Lewis, president of the United Mine Workers, said in Cincinnati, where he has been attending a meeting of the American Federation of Labor, that he believed the miners and rail men would strike in common, tie up industry and win. He was to meet the rail chiefs Tuesday night to discuss joint action.

The threat of a railroad strike has had no effect on the peace of mind of the coal consumer and therefore has not affected the market.

Anthracite Miners Reject Mediation Plan; Would Negotiate on Basis of Old Scale

REJECTION on June 14 by the representatives of the anthracite mine workers of the proposal of the anthracite operators that the differences between the operators and miners be submitted to arbitration had been anticipated by newspaper dispatches from the coal region. The formal rejection was given to the operators' committee at the Union League Club, New York City, at the first meeting of the joint subcommittee to be held since June 6, when the operators' proposal was submitted.

In rejecting the operators' proposal the representatives of the miners say it would be agreeable to them to join with the operators in arranging for a settlement of "our differences" on condition that the operators accept the request for an eight-hour day for day men, complete union recognition and that existing rates of pay be taken as a starting point for future deliberation.

The statement of the miners, addressed to S. D. Warriner, W. J. Richards, W. L. Connell and William W. Inglis, and signed by John L. Lewis, Philip Murray, Thomas Kennedy, C. J. Golden and W. J. Brennan, follows:

Your proposal for arbitration, which you made to us in conference on June 2, has been submitted to our general scale committee at a meeting at Hazleton on June 6-7, and has had our most serious and careful consideration.

The proposal which you make provides for the arbitration of our differences by a commission or tribunal to be appointed by the President of the United States. It is stated in general terms and does not specify what the scope of the powers or jurisdiction of such a tribunal or commission should be. We assume, however, that you contemplate the adjustment of rates of pay according to the four standards set forth by you in your counter-proposals to us of May 18.

These standards, as we have previously stated, are unacceptable to us, as they provide only for determining rates of pay according to the changes in factors affecting the demand for or supply of labor. They assume that labor in the anthracite mines is a commodity, the price of which should be determined by the same forces which influence the value of other commodities. The consideration of human standards is precluded, and no safeguards are afforded against the use as precedents before the tribunal or commission which you propose of wage scales fixed by the arbitrary action of employers in industries where collective bargaining is not recognized and where no proper standards of compensation are observed.

In the second place, we note that you make no mention of the three fundamentals which we insist should be accepted by you as a condition to the settlement of our differences. These are: (1) A living or saving wage for the workers in the lowest scale of occupations in the industry, (2) an actual eight-hour day for day men, and (3) complete union recognition. Our attitude is that these are fundamental rights or equities and should be accepted by you as preliminary to any wage adjustment and that they are not arbitrable matters.

In the third place, we note that you do not include within the scope of the jurisdiction of your proposed tribunal or commission any reference to labor costs as compared with other elements of cost and profits within the industry as royalties, freight rates and profits of coal-producing and coal-sales companies. You practically state that the question of a reduction in wages or labor costs should be arbitrated as a possible means of reducing prices of coal to the consumer. You doubtless know that we suggested to you a governmental investigation of the excessive prices of coal to the consumer, and you refused to accept our offer. Therefore, for these and other reasons, we are compelled to decline your proposition. We are in accord with your contention that prices of coal should be reduced, but believe that existing wages can be maintained and prices to consumers of coal be reduced by the lowering of other unnecessary costs and by the elimination of excessive profits in the industry.

In the light of our fundamental attitude, therefore, and with the understanding of your proposal as outlined above, it would be agreeable to us to join with you in arranging for a settlement of our differences on the following conditions:

FIRST—That you accept our requests for (1) an actual eight-hour day for day men in the industry, and (2) for complete union recognition, and

SECOND—That existing rates of pay be taken as a starting point for future deliberation. This together with a discussion of the other demands of the Shamokin convention we hope may result in prompt agreement.

Aside from the inequitableness of considering reductions in wages without at the same time considering the effect of other elements of cost and profits affecting prices of coal to consumers, we cannot agree to any basis of settlement which might reduce the earning possibilities of the mine workers, as their earnings under existing rates of pay are sufficient only for a bare standard of subsistence for themselves and their families. They feel that they should be entitled to a savings wage, the necessity for which in general has been so effectively set forth by President Harding and Secretary of Labor Davis in public statements.

On behalf of the anthracite mine workers, we present the foregoing suggestions with the hope that you will give to them your most earnest consideration in the interests of industrial peace.

After the reply of the miners had been presented to the operators the latter went into executive session, which lasted about 45 minutes. Then Mr. Warriner, on behalf of his associates, presented the operators' reply, which was addressed to the miners' representatives and signed by the operators' committee. It was as follows:

It is evident from your reply to our offer of unrestricted arbitration that you are not willing to further negotiate with us, nor to submit the matters in controversy to a tribunal appointed by the President unless the principal question to be considered, namely, wages, is only to be considered by revision upward.

It would have been just as reasonable if, in making our arbitration proposal, we had stipulated that only a downward adjustment of wages should be considered.

You make the further stipulation that to the recognition heretofore accorded your union shall be added the closed shop and check-off.

We cannot agree to the restrictions and limitations you propose.

Our proposal that a tribunal to be appointed by the President should ascertain and consider all the facts and determine the questions covering wages and conditions of employment at issue between us contains no restrictions or qualifications. The power of the tribunal should not be limited by the various reservations you make. Arbitration confined to its scope and limited to action in one direction only, regardless of facts, is no arbitration.

With a full realization of our responsibility to the public and with a sincere desire to secure a settlement of our controversy, we have offered a proposal of arbitration the character and fairness of which cannot be reasonably questioned. We can go no further.

We stand on this offer of arbitration. If you refuse it, and continue the present suspension, or carry out your threat of calling a strike, the responsibility is yours.

When the session of the joint subcommittee adjourned no date was set for the next meeting. It was announced, however, that the status of the negotiations would be made known to the miners and that a meeting of the general scale committee of the union will be held in Wilkes-Barre on June 26.

Illinois and Indiana Positively Will Not Take Part in Four-State Wage Conference

WHILE there has been much mysterious talk in the Middle West about "events about to happen" in the strike situation, nothing more definite has taken place there than an official declaration by both the Indiana and Illinois operators that they positively will not take part in a four-state conference. These statements were drawn forth by the published report that Ohio operators thought a four-state conference was now possible, and by a speech which William Green, secretary of the United Mine Workers, made in Cincinnati to the same effect.

The only other strike events of the week in the Middle West were the opening under machine-gun guard of the Lester & Sherwood strip mine six miles south of Herrin, Ill., and the harassed resumption of mining in a few more small pits in Indiana, as reported in another column. On the 16th the strip mine near Herrin began to load the first coal dug for the market in Illinois since April 1. Crowds gathered to watch the proceeding, but there was no interference with so formidably protected an operation. Most of the workers are reported to be men picked up in and around Chicago. They are housed and fed on the company's property.

The Illinois operators' statement, saying that they would deal only with their own men, follows:

"There is no warrant for the assumption of Ohio operators that Illinois would at this time participate in a joint conference with other states to consider the present mine labor situation: It is well known that from the latter part of 1921 through to the time Illinois mines were shut down by the order of the national organization of the miners, Illinois operators agreed to attend such conferences, but were in every instance denied permission so to do by John L. Lewis, president of the miners' national organization.

"The time has passed when such a joint conference with any other states is desirable, and the Illinois operators now will negotiate only with their own men in Illinois, as they have repeatedly assured Mr. Farrington they were entirely willing to do. The statement of Mr. Green regarding the willingness of the national officers of the miners' union to hold such conference if substantial tonnage might participate is only a repetition of their previous stand, on the basis of which Illinois has already been twice refused."

Indiana Suffers Several Outbreaks; Mine Owner's Wife Defeats "Army"

THE western Indiana coal fields are beginning to be shaken by strike outbursts and most of the counties of the Fifth Congressional district are sitting on a veritable volcano which threatens to erupt strife and bloodshed at any moment. Numerous little wagon mines are working, employing whoever wants to make a living. The miners of Vermillion, Vigo, Green, Clay and Sullivan counties are trying to drive these workers away. One hundred and fifty strikers who this week closed up a couple of small mines near Clinton went to another, where they were met by nine heavily armed guards who informed them the mine was running, would continue to run, and no talking was permitted by strikers. The miniature army left, with the threat to return.

Mrs. William Drake, wife of the proprietor of the Drake mine, near Terre Haute, stood more than 100 strikers at bay with a shotgun when the miners attempted to close down the mine. The same day four men were injured in the same district during outbursts between the radical element of the mine workers and mine operators. Some of the mine owners, in view of the recent decision concerning the liability of the mine workers' organization plan to enjoin the union from molesting them further.

Striking miners gathered at the Kern Coal Co. mine on East Hulman street, in Terre Haute, in an effort to force a shutdown. The management refused to close, despite the fact that the union men pushed a large bus across the road in an effort to stop the truckers from getting to the main public highway. The day following the workers reported with shotguns. Leaving the Kern mine the mob went to the Morris & Faulkner mine and demanded that eight men there cease work. It was said that the men refused, whereupon the strikers threatened to upset several loaded wagons. Threats of burning the mine property and acts of violence were said to have been made by the men. The sheriff's office in each county appears powerless to do anything to prevent such occurrences.

Working Forces in Connellsville Region Continue to Increase; Workers Attacked

IN the Connellsville coke region the past week has been marked by slight increases in the working forces and outputs at most plants which have been in operation. The H. C. Frick Coke Co. has been able to resume operations at the Continental No. 1 plant and increase 70 per cent at the Leisinring No. 3 plant. The Hillman Coal & Coke Co. has resumed in a small way at the Griffin No. 1 and Tower Hill No. 1 plants in the past week.

The American Coke Corporation has made a start at the Orient and Martin plants. The American Manganese Co. at Dunbar has doubled the output in the past two weeks and is shipping eight to nine cars of coal per day. The Consolidated Coke Co. and the Stewart plant of W. J. Rainey, Inc., have doubled their production in the past two weeks.

On Tuesday night, June 13, a large crowd of striking mine workers congregated on the downtown business streets

of Brownsville, expecting some strike breakers to arrive on some of the evening trains. Being disappointed in this, they attacked two men working for the Brier Hill Coke Co. who happened to be on the street, but who were rescued by the local police and the Brier Hill foreman before they were injured. Later in the evening they attacked an assistant mine foreman from Alicia No. 1 coke plant of the Pittsburgh Steel Co. (which plant is working).

Violence Recurs in Scott's Run Field; Augment State Police and Sheriff's Force

SINCE a number of companies succeeded in getting back to an operating basis in the Scott's Run field of Monongalia County, West Virginia, there has been more or less violence in that field, reaching its climax about the middle of June, when it became necessary to increase the size of the detachment of state police on duty in Monongalia and also to augment the size of the sheriff's force in order to safeguard lives and properties. Despite the frequent demonstrations, marches and other overt acts, miners continue to work and production continues about on the same level. It has been necessary, however, for Judge Lazelle and the Prosecuting Attorney of Monongalia County to forbid further assemblages on the public thoroughfares and on private property.

Utah Troops Round Up Strikers After Much Outlawry; Mine Manager Shot

GOVERNOR MABEY of Utah has issued a proclamation declaring martial law in Carbon County following the shooting up of a train near Castlegate, the killing of a deputy sheriff acting as a mine guard and the wounding of General Manager Lewis, of the Standard Coal Co., and others. Members of the national guard are now in control and are rounding up the strikers and disarming them.

Major Johnson, in command, has been given absolute authority to take all necessary steps to end the lawlessness in the strike area and there has been some talk of closing the mines. Machine guns have been placed on the hillsides. Many arrests have been made. So far the strikers have submitted quietly to the rule of the new authority and some of them even good naturedly.

Somerset County Court Inflicts Fines For Violation of Injunction

TWENTY-NINE men and ten women were adjudged guilty of contempt in the Somerset County (Pa.) Court on June 13, being held for violating an injunction restraining union miners from interference with the operations of the Consolidated Coal Co. plants. Among those adjudged guilty were George Wagner, president; John Uhrin, vice president, and Tom Austovich, treasurer, of the Biesecker local of the United Mine Workers. The officers were fined $100 each and their share of the costs and paroled in the custody of Sheriff J. W. Griffith for six months. The other men were fined $100 each, $25 to be paid within ten days, and paroled for six months. The women were fined $75 each, and costs, and paroled for six months.

Operators of Belmont County, Ohio, Ask Injunction Against Intimidation

INJUNCTION proceedings against miners in Belmont County, Ohio, who are trying, it is asserted, to intimidate employees of the Katherine Coal Stripping Co., have been filed in the U. S. Court at Columbus. The petition is similar in every respect to that filed several weeks ago by a number of stripping operators in Jefferson County, including the Harmon Creek Coal Co., the Penova Coal Co., the Tasca Coal Co., the Wayne Coal Co. and the United Coal Mines, Inc. The former suit has been heard by the court and Judge Sater has granted a temporary injunction to prevent union miners from interfering with the employees of the plaintiff companies.

Railroad Labor Board Cuts Pay of Clerks, Signalmen and Stationary Firemen

ON Friday, June 16, the Railroad Labor Board announced another wage reduction order, cutting about $27,000,000 a year from the wages of clerks, signalmen and stationary firemen, reductions being from 2c. to 6c. an hour. About 325,000 employees are affected, and this reduction brings the total ordered by the board, effective July 1, to $135,000,000 a year, affecting in all 1,200,000 employees.

The board says that while it must not be assumed that the employees must bear the cost of railway rehabilitation, "patriotic common sense" demands that every citizen, including railway employees, should co-operate in getting the carriers back on their feet. This decision passes upon two subjects which have been persistently injected into coal-wage discussions for the last two years—the "living wage" or "saving wage" and the "family budget."

On the first the board said that as soon as post-war conditions, which now obscure matters, are cleared up, it will give consideration to details incident to the scientific adjustment of wages on the "living" or "saving" basis.

The board said it had given careful consideration to the employees' testimony with respect to "budgets" but that the matter submitted on this and on standards of living was "highly theoretical and of but little value."

"When the railway employees' department presented figures to show that the sum of $2,636.97 is necessary for the minimum comfort budget of the average family," said the decision, "it propounded an economic impossibility."

Jersey Central Files Answer in Reading Segregation Suit

IN THE federal court at Philadelphia the Central Railroad Company of New Jersey made answer Wednesday, June 14, to the petition of Isaac T. Starr and Mary T. W. Starr to intervene in the Reading segregation case on their objection to the sale of the controlling interest in the Lehigh & Wilkes-Barre Coal Co. to the Reynolds syndicate.

The answer says that the Reynolds bid amounted to $32,291,130, with a cash payment of $11,036,220, while the Franklin Securities Co. bid was $32,278,184, with an initial cash payment of $6,384,029. It is contended that there were indefinite features about the Franklin bid, which were subject to negotiation and adjustment, and that it was contingent upon there being no legal obstacle to transferring the stock to the Lehigh Coal & Navigation Co.

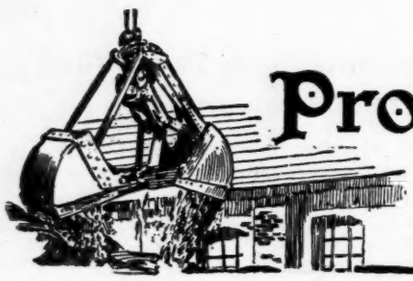
It is said there is no evidence to support the contention that Mr. Reynolds was favored in the matter of information about the coal company and that the question whether the members of the Reynolds syndicate are qualified to hold the coal-company stock is a matter for the Department of Justice to determine and does not concern Jersey Central stockholders.

I. C. C. Approves Ford Cut in Coal Rates

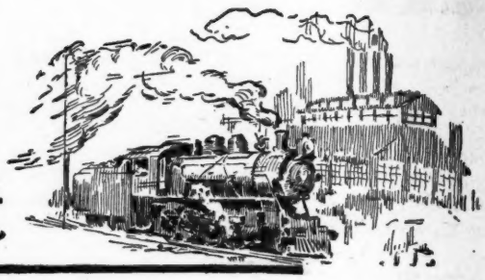
REDUCTIONS in freight rates on coal proposed by Henry Ford on his railroad, the Detroit, Toledo & Ironton, which originally were suspended by the Interstate Commerce Commission, were sanctioned June 14 under a final decision of the commission. They become effective July 1 and reduce rates on coal from southern Ohio points approximately 10c. a ton.

The commission, upon the protest of competing mine operators on other railroads, had ordered the schedules held up to await investigation.

The regulating board found that the Ford railroad, instead of proposing to scrap a scheme of carefully adjusted rates on coal from the mines in Pennsylvania, Ohio, West Virginia, Kentucky and Tennessee, was intending to restore an adjustment revoked by the Detroit, Toledo & Ironton before Ford acquired control of it. The commission said Ford had done right when he removed the mines on his road from the Ironton to the Jackson district.



Production and the Market



Weekly Review

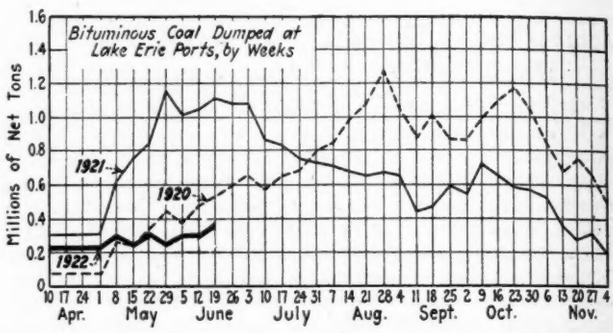
CONSUMERS are not worrying about their fuel supply. A softer market has been brought about by this complacent attitude, which has been induced largely by such factors as the rumors of attempts to settle the strike, the withdrawal of any but emergency fuel orders until the freight-rate reductions become effective, July 1, and the approach of the usual midsummer lethargy of industry, which is already making itself felt in some lines. There is almost an entire lack of interest in the railroad strike threat. So far this has produced no additional business and but very few inquiries for early deliveries.

Not the least potent of these influences on the market is the belief that Secretary Hoover's price list is a bulwark against prohibitive prices. Spot coal values have not reached these figures since they were announced on June 1, and have receded further in the last week. *Coal Age* Index of spot bituminous prices stands at 274 on June 19, as compared with 284 on June 12; this represents an average mine price of $3.31 per ton, a drop of 13c. from the figure for the preceding week.

Diverse Conditions Shown in Various Markets

Connellsville coal, which is not included in Hoover's price list, advanced during the past week, due to an active steel demand. The market is comparatively strong from Connellsville east, with the exception of New England, which is still being amply supplied by Southern coals from Hampton Roads. West of Pittsburgh the only active market is in the Northwest. The Head-of-the-Lakes docks had only 2,375,000 tons on hand June 1, of which about one-third is free coal. Demand from railroads and other large users has absorbed about all of this open tonnage that the docks will spare. Some docks have no surplus and many others are holding coal for old customers. Receipts by Lake have been so light this season that strenuous shipping efforts must now be made to avert a fuel shortage in the Northwest this winter.

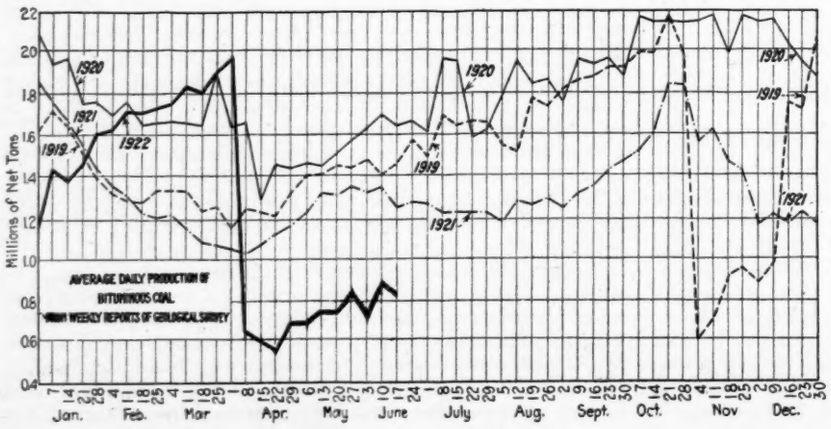
The Chicago and Midwestern territories again present an unattractive market for coal. As in other sections, there is a tendency to await cheaper transportation costs after July 1. Large consumers generally have fair reserves to tide them over the balance of June and many are taking coal on short-term agreements. This has removed so much of the spot demand that, despite the efforts of operators, prices have slumped and some jobbers have again unloaded at a loss. Western Kentucky coal, unhampered by any price edict from Washington, was selling around $4.15 ten



days ago. Early this week $3.65 and even lower had been recorded. Alabama tonnage is now entering Illinois fuel markets, and this is a factor in breaking prices. The congestion of unsold cars of both eastern and western Kentucky coal has been so great that mines on the L. & N. have been refused a full car supply until the accumulation has been moved.

Tidewater prices have softened but little. The flow of coals to Hampton Roads has been cut down, however, and much of it has been diverted through Cincinnati to inland markets. This has softened prices on both high and low volatile.

Despite the strike this year production of bituminous coal up to the end of the first week in June was equal to the output in the corresponding period of 1921. At



Estimates of Production

(Net Tons)

BITUMINOUS

Week ended:	1922	1921
May 27	4,889,000	8,166,000
June 3 (*b*)	4,616,000	6,835,000
June 10 (*a*)	5,078,000	8,010,000
Daily average	846,000	1,335,000
Calendar year	172,192,000	173,551,000
Daily. av. cal. yr.	1,261,000	1,280,000

ANTHRACITE

May 27	9,000	1,988,000
June 3	8,000	1,573,000
June 10 (*a*)	13,000	1,963,000

COKE

June 3	97,000	61,000
June 10 (*a*)	98,000	58,000
Calendar year	2,885,000	3,249,000

(*a*) Subject to revision (*b*) Revised from last report.

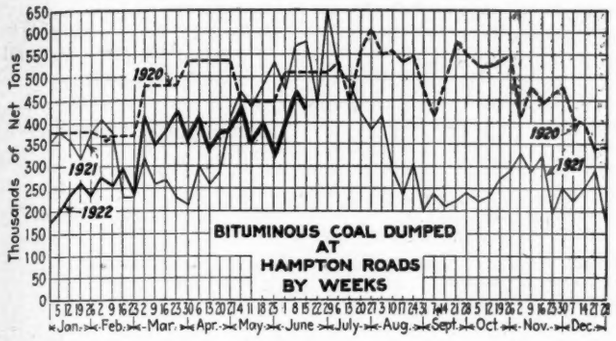
the beginning of this year stocks were practically identical with those of Jan. 1, 1921. It is estimated, however, that stocks are now around 10,000,000 tons less than at this time last year.

The anthracite situation seems to be deadlocked and probably can be broken only by the President calling a conference of producers and miners. In the meantime the output is confined to a small steam tonnage dredged from the rivers.

BITUMINOUS

"Production of soft coal in the tenth week of the strike was 5,078,000 net tons, but the eleventh week (June 12-17) is expected to show a decrease," says the Geological Survey.

"Complete returns confirm the forecast of output in the tenth week of the strike. Including the 13,000 tons of anthracite dredged from the rivers, the total output of all


Thousands of Net Tons
1920
1921
1922
BITUMINOUS COAL DUMPED AT HAMPTON ROADS BY WEEKS
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct Nov. Dec.

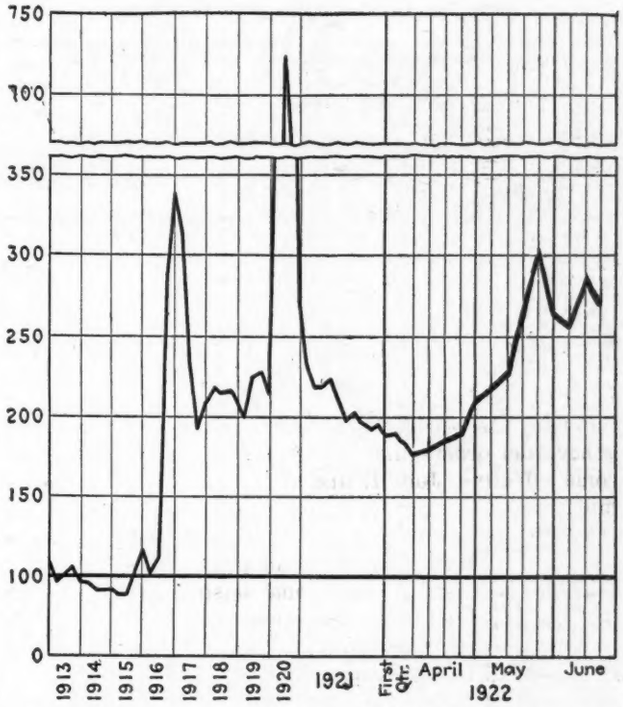
coal was 5,091,000 tons. In the corresponding week of 1921, a year of acute business depression, production (including anthracite) was 9,974,000 tons. In the active year, 1920, it was 12,315,000 tons. If anthracite and bituminous coal be regarded as a common supply of fuel, it will be seen that the coal now being raised weekly is from 5 to 7 million tons below normal.

DAILY LOADINGS DURING STRIKE

	First Week	Sixth Week	Seventh Week	Eighth Week	Ninth Week	Tenth Week	Eleventh Week
Monday	11,445	13,118	13,366	14,772	15,058	14,597	15,590
Tuesday	11,019	13,266	12,830	15,085	11,056	15,269	15,735
Wednesday	11,437	13,445	13,422	14,677	15,222	15,999	14,947
Thursday	11,090	13,266	13,445	14,573	13,790	16,325	15,023
Friday	11,296	13,727	14,036	15,202	14,523	15,864	.....
Saturday	8,888	11,454	12,357	12,662	12,545	13,991	.....

"The eleventh week started out well, but on Wednesday serious congestion of railroad yards and sidings in certain districts of southeastern Kentucky began to interfere with the placement of empty cars at the mines. As a consequence loadings on Wednesday and Thursday were about a thousand cars below those of last week. It is therefore unlikely that the total output for the eleventh week will do more than reach the 5,000,000-ton mark."

All-rail movement to New England during the week ended June 10 declined slightly to 520 cars from 565 cars in the week preceding. This territory presents a limited market for Pennsylvania coals, owing to the competitive



Coal Age Index 274, Week of June 19, 1922. Average spot price for some period $3.31. This diagram shows the relative, not the actual, prices on fourteen coals, representative of nearly 90 per cent of the total output of the United States, weighted in accordance first with respect to the proportions each of slack, prepared and run-of-mine normally shipped and second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke, 1913-1918," published by the Geological Survey and the War Industries Board. (Pittsburgh District, Illinois and Indiana prices not included in figures for last week.)

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F. O. B. Mines

Low-Volatile, Eastern	Market Quoted	May 22, 1922	June 5, 1922	June 12, 1922	June 19, 1922†
Smokeless lump	Columbus	$3.65	$3.35	$3.75	*$3.40@$3.60*
Smokeless mine run	Columbus	3.30	3.00	3.50	*3.25@ 3.40*
Smokeless screenings	Columbus	3.25	2.85	3.20	*3.00@ 3.35*
Smokeless lump	Chicago	2.75	3.10	3.65	*3.25*
Smokeless mine run	Chicago	2.75	2.85	3.40	*3.00@ 3.25*
Smokeless lump	Cincinnati	3.50	3.40	3.65	*3.40@ 3.75*
Smokeless mine run	Cincinnati	3.25	2.85	3.40	3.25@ 3.50
Smokeless screenings	Cincinnati	3.15	2.75	3.00	**3.00 @ 3.25**
*Smokeless mine run	Boston	7.35	6.05	6.65	*6.00@ 6.25*
Clearfield mine run	Boston	3.75	3.20	3.25	*2.85@ 3.25*
Cambria mine run	Boston	4.25	3.65	3.75	*3.25@ 3.75*
Somerset mine run	Boston	3.65	3.15	3.25	*3.00@ 3.40*
Pool 1 (Navy Standard)	New York	.....	4.40	.....	4.25@ 4.50
Pool 1 (Navy Standard)	Philadelphia	4.75	.....	.....	.....
Pool 1 (Navy Standard)	Baltimore	.....	.....	.....	3.75@ 4.25
Pool 9 (Super.Low Vol.)	New York	.....	3.90	4.00	**3.90 @ 4.15**
Pool 9 (Super.Low Vol.)	Philadelphia	4.65	3.90	4.05	**4.00 @ 4.60**
Pool 9 (Super.Low Vol.)	Baltimore	4.75	3.40	4.25	*3.75@ 4.00*
Pool 10 (H.Gr.Low Vol.)	New York	4.90	3.75	4.00	*3.75@ 3.90*
Pool 10 (H.Gr.Low Vol.)	Philadelphia	4.75	3.70	3.75	**3.75 @ 4.25**
Pool 10 (H.Gr.Low Vol.)	Baltimore	4.75	3.35	3.75	**3.75@ 4.00**
Pool 11 (Low Vol.)	New York	4.65	3.60	4.00	*3.40@ 3.65*
Pool 11 (Low Vol.)	Philadelphia	.....	3.25	3.50	**3.50 @ 4.00**
Pool 11 (Low Vol.)	Baltimore	4.75	3.15	3.75	*3.50*
High-Volatile, Eastern					
Pool 54-64 (Gas and St.)	New York	.....	3.65	4.00	*3.50@ 3.85*
Pool 54-64 (Gas and St.)	Philadelphia	3.40	.....	.....	.....
Pool 54-64 (Gas and St.)	Baltimore	4.00	3.25	3.80	*3.50*
Kanawha lump	Columbus	3.60	3.15	3.65	*3.25@ 3.50*
Kanawha mine run	Columbus	3.25	2.85	3.40	*3.15@ 3.35*
Kanawha screenings	Columbus	3.35	2.65	3.15	**3.15@ 3.35**
W. Va. Splint lump	Cincinnati	3.40	3.25	3.50	*3.25@ 3.50*
W. Va. Gas lump	Cincinnati	3.65	3.25	3.50	*3.25@ 3.50*
W. Va. mine run	Cincinnati	$3.40	$2.75	$3.25	*$2.85@ $3.15*
W. Va. screenings	Cincinnati	3.25	2.60	3.15	*2.85@ 3.00*
Hocking lump	Columbus	3.90	3.10	3.65	*3.25@ 3.50*
Hocking mine run	Columbus	3.65	3.00	3.40	*3.00@ 3.25*
Hocking screenings	Columbus	3.50	2.85	3.15	3.00@ 3.25
Pitts. No. 8 lump	Cleveland	3.90	.....	4.00	4.00
Pitts. No. 8 mine run	Cleveland	3.90	.....	3.70	3.60@ 3.75
Pitts. No. 8 screenings	Cleveland	3.90	.....	3.70	3.60@ 3.75
Midwest					
West Ky. lump	Louisville	3.25	3.30	3.75	**3.75@ 3.90**
West Ky. mine run	Louisville	3.25	3.30	3.75	**3.65@ 3.90**
West Ky. screenings	Louisville	3.25	3.30	3.75	**3.65@ 3.90**
West Ky. lump	Chicago	3.60	3.40	4.15	*3.65@ 3.90*
West Ky. mine run	Chicago	3.60	3.40	3.95	*3.65@ 3.90*
South and Southwest					
Big Seam lump	Birmingham	2.00	2.20	2.20	2.15@ 2.25
Big Seam mine run	Birmingham	1.70	1.70	1.85	1.75@ 2.00
Big Seam (washed)	Birmingham	1.85	1.85	1.85	1.75@ 2.00
S. E. Ky. lump	Chicago	3.65	3.10	3.75	*3.50*
S. E. Ky. mine run	Chicago	3.50	3.10	3.50	*3.25*
S. E. Ky. lump	Louisville	3.90	2.85	3.75	3.75
S. E. Ky. mine run	Louisville	3.40	2.85	3.50	*3.00@ 3.50*
S. E. Ky. screenings	Louisville	3.40	2.85	3.25	*3.00@ 3.25*
S. E. Ky. lump	Cincinnati	3.50	3.25	3.50	3.40@ 3.60
S. E. Ky. mine run	Cincinnati	3.50	2.80	3.40	*3.00@ 3.15*
S. E. Ky. screenings	Cincinnati	3.25	2.75	3.15	*2.75@ 3.00*
Kansas lump	Kansas City	4.25	4.25	5.00	5.00
Kansas mine run	Kansas City	4.15	4.20	4.25	4.00@ 4.50
Kansas screenings	Kansas City	2.65	2.75	2.85	**2.85@ 3.00**

*Gross tons, f. o. b. vessel, Hampton Roads.
†Advances over previous week shown in **heavy type**, declines in *italics*.
NOTE—Smokeless prices now include New River and Pocahontas.

How the Coal Fields Are Working

Percentages of full-time operation of bituminous coal mines, by fields, as reported by the U. S. Geological Survey in Table V of the Weekly Report.

	Six Months July to Dec. 1921	Jan. to Apr. 1, 1922 inclusive	April 8 to June 3, 1922 inclusive	Week Ended June 3
U. S. total	45.6	55.7	....	....
Non-Union				
Alabama	63.5	64.6	75.1	88.6
Somerset County	55.5	74.9	45.6	26.0
Panhandle, W. Va.	55.3	51.3	39.9	45.7
Westmoreland	54.9	58.8	78.6	77.1
Virginia	54.8	59.9	77.4	84.5
Harlan	53.3	54.8	53.5	68.9
Hazard	51.7	58.4	60.9	72.9
Pocahontas	49.8	60.0	75.3	78.5
Tug River	48.1	63.7	81.2	83.8
Logan	47.6	61.1	76.1	79.0
Cumberland-Piedmont	46.6	50.6	15.1	18.6
Winding Gulf	45.7	64.3	70.8	74.9
Kenova-Thacker	38.2	54.3	78.5	82.8
N. E. Kentucky	32.9	47.7	60.5	67.0
New River‡	24.3	37.9	17.1	35.6
Union				
Oklahoma	63.9	59.6	14.3	13.0
Iowa	57.4	78.4	0.0	0.0
Ohio, Eastern	52.6	46.6	0.0	0.0
Missouri	50.7	66.8	0.7	2.5
Illinois	44.8	54.5	0.0	0.0
Kansas	42.0	54.9	11.6	15.0
Indiana	41.4	53.8	0.0	0.0
Pittsburgh†	41.2	39.8	0.0	0.0
Central Pennsylvania	39.1	50.2	11.5	12.7
Fairmont	35.3	44.0	4.7	4.8
Western Kentucky	32.5	37.7	55.5	68.6
Pittsburgh*	30.4	31.9	0.0	0.0
Kanawha	26.0	13.0	3.2	10.1
Ohio, southern	22.9	24.3	0.0	0.0

* Rail and river mines combined.
† Rail mines.
‡ Union in 1921, non-union in 1922.

position of the Southern fuels and shipments are mostly on railroad contracts.

Hampton Roads dumpings were 436,736 net tons during the week ended June 15, as compared with 472,300 tons in the previous week. Accumulations at the piers have declined but the approach of the freight cut on July 1 has made a quieter market. Marine freights show a firmer tendency with the talk of a railroad strike.

Lake dumpings during the week ended June 19 were 388,661 net tons—378,181 tons cargo and 10,480 tons vessel fuel—as compared with 293,110 tons in the preceding week. For the Lake season to date 3,039,413 tons have been dumped, as compared with 8,019,733 tons in the corresponding period last year. Much of this tonnage has been going to new destinations on Lake Erie. This has further reduced the abnormally small movement up the Lakes.

ANTHRACITE

Production of hard coal remains practically at a standstill, being confined during the week ended June 10 to 253 cars of steam coal dredged from the rivers. Consumers are gradually showing more interest in the situation. Some orders for winter coal are being placed but the retailers are mostly taking these as applications for coal when it is again available and are safeguarding their present meager stocks wherever possible. Steam coal in mine storage is practically cleaned up or on order and this has improved the demand for river coals.

COKE

Production of beehive coke was 98,000 tons during the week ended June 10, a gain of 1,000 tons as compared with the previous week. Coke offerings are very light and the price range is firm at last week's quotations.

Production of byproduct coke increased sharply during May. One reason for the increase was the smaller supply of beehive coke resulting from the strike in the Connellsville region. Against a total of 732,000 tons of beehive coke in March, the May output was only 432,000 tons.

MONTHLY OUTPUT OF BYPRODUCT AND BEEHIVE COKE IN THE UNITED STATES *a*

(Net Tons)

	Byproduct Coke	Beehive Coke	Total
1917 Monthly average	1,870,000	2,764,000	4,634,000
1918 Monthly average	2,166,000	2,540,000	4,706,000
1919 Monthly average	2,095,000	1,638,000	3,733,000
1920 Monthly average	2,565,000	1,748,000	4,313,000
1921 Monthly average	1,660,000	463,000	2,123,000
February, 1922	1,795,000	549,000	2,344,000
March, 1922	2,137,000	732,000	2,869,000
April, 1922	2,208,000	528,000	2,736,000
May, 1922	2,537,000	432,000	2,969,000

(*a*) Excludes screening and breeze.

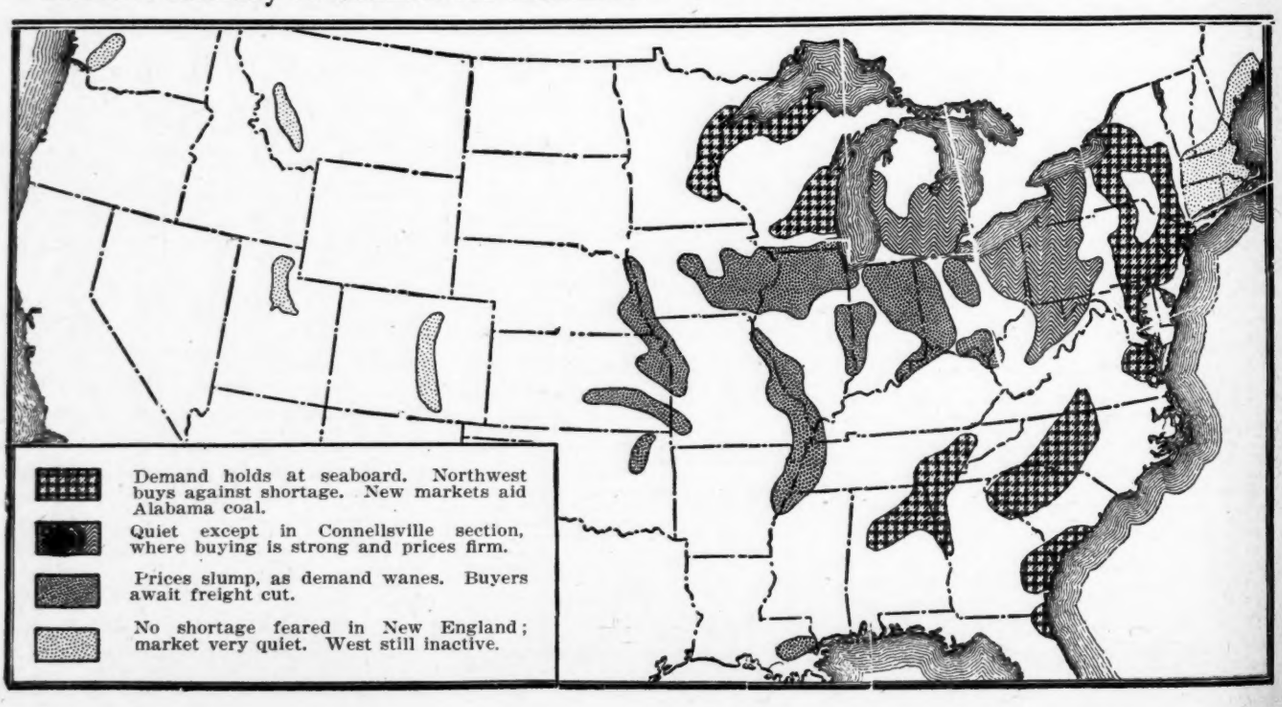
ESTIMATED MONTHLY CONSUMPTION OF COAL FOR MANUFACTURE OF COKE

(Net Tons)

	Consumed in Byproduct Ovens	Consumed in Beehive Ovens	Total Coal Consumed
1917 Monthly averag	2,625,000	4,354,000	6,979,000
1918 Monthly average	3,072,000	4,014,000	7,086,000
1919 Monthly average	2,988,000	2,478,000	5,466,000
1920 Monthly average	3,684,000	2,665,000	6,349,000
1921 Monthly average	2,385,000 (*a*)	731,000 (*a*)	3,116,000
March, 1922	3,071,000 (*a*)	1,155,000 (*a*)	4,226,000
April, 1922	3,172,000 (*a*)	833,000 (*a*)	4,005,000
May, 1922	3,645,000 (*a*)	681,000 (*a*)	4,326,000 (*a*)

(*a*) Assuming a yield in merchantable coke of 69.6 per cent of the coal charged in by-product ovens, and 63.4 per cent in beehive ovens.

Relative Activity of Markets for Bituminous Coal at End of Eleventh Week of Strike


Demand holds at seaboard. Northwest buys against shortage. New markets aid Alabama coal.
Quiet except in Connellsville section, where buying is strong and prices firm.
Prices slump, as demand wanes. Buyers await freight cut.
No shortage feared in New England; market very quiet. West still inactive.

Foreign Market And Export News

British Output Nears Low Point of Year; Sales Pushed to Prevent Congestion

PRODUCTION in the United Kingdom for the week ended June 3 was 4,441,000 gross tons, as compared with 4,630,000 tons for the previous week, according to a cable to *Coal Age*.

Business is more active than last week. The trade is making concessions to buyers for immediate deliveries in order to clear heavy supplies and prevent congestion. Some cargoes are being booked for Canada. The Argentine Department of Navigation is inquiring for 25,000 tons, to be spread over five months.

The Miners' Federation has met in London to consider the wages position. After the deliberations, the secretary said that it was ascertained that every district in the Federation, with the exception of one, is now down to the minimum of wages, and that this, combined with the irregularity of employment, is resulting in hardships to the men. So low are the wages and so bad the situation that in his opinion the British famine has begun. Owing to the breach in the continuity of payment of the unemployment benefit in areas where unemployment is continuous, great hardships are being experienced. It has also been decided to interview the Minister of Labor for the purpose of securing the reversal of the decision refusing to concede unemployment benefit to workmen where they had declined to accept wages from the employers at certain collieries below the district rate provided in the agreement.

The Miners' Wages Board for the Eastern area meeting at Derby fixed the percentage addition to basis wages for June at 64.43 as against 79.71 for May. Only one larger reduction has taken place since the present arrangement came into force last July. The actual loss to workers will range from 9d. to 1s. 3d. per shift.

French Mines Increase Output

Production of coal in France during March was 2,764,304 tons as compared with 2,434,506 tons in February, according to the *Colliery Guardian*. These figures are exclusive of the Sarre, which in March raised 1,042,866 tons, sales amounting to 851,342 tons. In April the Sarre production amounted to 798,673 tons, and sales to 667,935 tons.

FRENCH COAL STATISTICS
First Quarter 1922

	Coal and Lignite — Mar. Tons	Jan.-Mar. Tons
Production	2,764,304	7,935,192
Imports	2,081,268	5,909,755
Exports	75,055	244,552
Consumption	4,770,517	13,600,395
	Coke* Mar. Tons	Jan.-Mar. Tons
Production	82,207	220,997
Imports	432,501	1,053,093
Exports	50,033	144,354
Consumption	464,675	1,129,736
	Briquets† Mar. Tons	Jan.-Mar. Tons
Production	198,767	680,566
Imports	95,260	452,386
Exports	11,259	34,066
Consumption	282,768	1,098,886

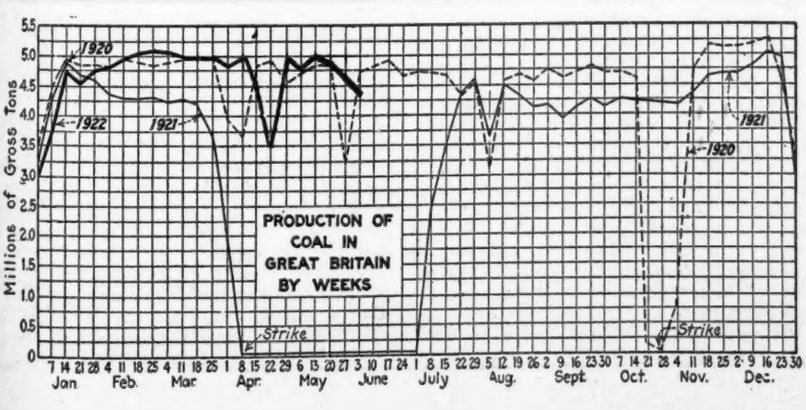
*Not including coke produced at metallurgical works.
†Not including briquets produced at independent works.

In March 1,219,561 tons were imported from Great Britain, 320,440 tons from the Sarre, 298,184 tons from Germany, 161,618 tons from Belgium, and 90,432 tons from Holland. Imports in the first quarter were as follows: Great Britain, 3,231,898 tons; Germany, 974,280 tons; Sarre, 823,727 tons; Belgium, 666,833 tons; Holland, 206,490 tons; United States, 6,340 tons. In March 370,917 tons of coke were imported from Germany, raising the total for the three months to 936,042 tons.

Hampton Roads Market Awaits July 1

Business was fair last week but dumpings showed a decrease from the previous week. Demand was not as strong as formerly, dealers attributing this condition to the agitation in Congress for more general operation of mines, which is expected here to bring down prices somewhat. Another factor is the impending reduction of freight rates July 1.

Export business was extremely slack, with shipments coastwise to the North holding their own. General shipping was on the increase, bringing up the demand for bunkers.



Coal Paragraphs from Foreign Lands

ITALY — Cardiff steam first is now quoted at 38s. 3d., according to a cable to *Coal Age*. Last week's quotation was 38s.

BELGIUM — The crisis in industrial coals persists and the piling up of stocks continues, especially in the Borinage district. Domestic kinds and anthracites still find a steady market, thanks to foreign demand.

SPAIN—The freight rate for coal from the Asturias to Barcelona is now 15 to 16 pesetas.

Hampton Roads Pier Situation

	Week Ended June 8	June 15
N. & W. Piers, Lambert's Point:		
Cars on hand	3,365	3,050
Tons on hand	179,235	161,531
Tons dumped	215,567	190,382
Tonnage waiting	20,000	30,000
Virginia Ry. Piers, Sewalls Point:		
Cars on hand	1,588	1,839
Tons on hand	79,400	91,950
Tons dumped	120,957	96,258
Tonnage waiting	12,326	15,000
C. & O. Piers, Newport News:		
Cars on hand	2,274	1,412
Tons on hand	113,700	87,500
Tons dumped	85,173	103,303
Tonnage waiting	3,635	7,500

Export Clearances, Week Ended June 15, 1922

FROM HAMPTON ROADS:

	Tons
For Brazil:	
Ital. S.S. Etna, for Buenos Aires	6,427
For Chile:	
Am. S.S. Orcus, for Talcahuano	5,487
For Colombia:	
Am. S.S. Levisa, for Santa Marta	2,406
For Cuba:	
Nor. S.S. Sagoland, for Sagua de Tanamo	618

Pier and Bunker Prices, Gross Tons

PIERS	June 10	June 17†
Pool 9, New York	$7.50@$8.00	.....
Pool 10, New York	7.50@ 7.80	*$7.50@$7.75*
Pool 9, Philadelphia	7.00@ 7.50	**7.35@ 8.00**
Pool 10, Philadelphia	6.60@ 7.15	**7.00@ 7.25**
Pool 71, Philadelphia	7.50	**8.25**
Pool 1, Hamp. Rds	6.25@ 6.65	*6.25@ 6.40*
Pools 5-6-7 Hamp. Rds.	6.25@ 6.50	6.25@ 6.50
Pool 2, Hamp. Rds	6.50	6.50
BUNKERS		
Pool 9, New York	$7.80@$8.30	.....
Pool 10, New York	7.80@ 8.10	*$7.50@$7.80*
Pool 9, Philadelphia	7.25@ 7.60	**7.60@ 8.25**
Pool 10, Philadelphia	6.85@ 7.20	**7.50@ 8.00**
Pool 1, Hamp. Rds	6.25@ 6.60	*6.25@ 6.50*
Pool 2, Hamp. Rds	6.25@ 6.50	6.25@ 6.50
Welsh, Gibraltar	43s. f.o.b.	43s. f.o.b.
Welsh, Rio de Janeiro	57s. 6d. f.o.b.	57s.6d.f.o.b.
Welsh, Lisbon	43s. f.o.b.	43s. f.o.b.
Welsh, La Plata	50s. f.o.b.	50s. f.o.b.
Welsh, Genoa	43s. t.i.b.	42s. t.i.b.
Welsh, Messina	41s. f.o.b.	41s. f.o.b.
Welsh, Algiers	41s. f.o.b.	*38s.6d.f.o.b.*
Welsh, Pernambuco	65s. f.o.b.	65s. f.o.b.
Welsh, Bahia	65s. f.o.b.	65s. f.o.b.
Welsh, Madeira	42s. 6d. f.a.s.	42s. 6d. f.a.s.
Welsh, Teneriffe	40s. 6d. f.a.s.	40s. 6d. f.a.s.
Welsh, Malta	44s. 6d. f.o.b.	44s. 6d. f.o.b.
Welsh, Las Palmas	40s. 6d. f.a.s.	40s. 6d. f.a.s.
Welsh, Naples	38s. f.o.b.	38s. f.o.b.
Welsh, Rosario	52s. 6d. f.o.b.	52s. 6d. f.o.b.
Welsh, Singapore	57s. 6d. f.o.b.	*55s.* f.o.b.
Port Said	51s. 6d. f.o.b.	*49s.* f.o.b.
Alexandria	43s.	43s.
Capetown	35s. 3d.	35s. 3d.

Current Quotations British Coal f.o.b. Port, Gross Tons

Foreign Quotations by Cable to Coal Age

Cardiff:	June 10	June 17†
Admiralty, Large	26s. 9d.@ 27s.	*26s.6d.@26s.9d*
Steam, Smalls	18s. 6d.@19s.	*18s.@18s.6d.*
Newcastle:		
Best Steams	24s.	*23s.6d.@24s.*
Best Gas	22s. 6d.	*21s.6d.*
Best Bunkers	20s.@21s.	*20s.@21s.*

†Advances over previous week shown in **heavy type**; declines in *italics*.

North Atlantic

Buying of Bare Needs Holds Prices Fairly Steady

Purchasers Hold Off as Much as Possible Till Freight Cut Becomes Effective —New York Receives Large Volume of Southern Coal on Orders.

THIS market has quieted still further. As July 1 approaches buyers are taking the barest needs until they can obtain the benefit of reduced freights at that time. There is enough of this demand, however, to maintain prices fairly well and in the case of some quality coals prices have even been advanced.

New York presents the easiest market. There are more cars at the piers than last week and Southern coals are arriving in heavy volume. Very little of this fuel is coming in "on spec," most of it being on orders of large consumers. The threatened rail strike presents an opportunity for greater marine activity and boat freights are developing signs of strength.

NEW YORK

Quotations fluctuated last week and toward the end of the week were somewhat lower. With about 2,000 cars at the local piers and reports showing heavier production, quotations had to be shaded if shippers wanted to induce buying.

Buyers were looking for bargains if they wanted coal. Then there is an impression that prices are going much lower when the new freight rates become effective.

Reports that many textile mills in New England have reopened or are about to do so are gratifying to many local houses, as it will give them an opportunity to place some of their coals.

The gas, electric and transportation companies are receiving large tonnages of Southern coals. Free coals brought here from Southern ports are being quoted $8@$8.25, with lower quotations being heard occasionally.

Early in the week stray lots of Clearfield wagon-mine coal was being quoted around $3.90. Other quotations included B. R. & P. coals around $4; Bessemer the same figure and ¾-in. gas around $4.75.

The railroads were reported as buying heavily, although there were reports that they had stopped buying for the time being.

CENTRAL PENNSYLVANIA

During the last week there were 3,449 cars loaded as against 2,723 cars in the week previous, while the first eleven days of June showed a production of 4,970 cars as against 3,824 cars in the corresponding period of May. The increase was largely brought about by larger forces in the mines in operation, but few operations being opened.

Reports from where the miners have been idle since April 1 show much privation. This is causing great dissatisfaction with the union leaders because of their failure to negotiate a settlement. The feeling is growing that the miners will not tolerate this condition long but will make the best adjustment they can.

PHILADELPHIA

There has been some stiffening of prices recently, although production has been increased. Inquiries have increased very much and the consumer seems to be more interested than for some time.

The buying public has taken it for granted that the Hoover list included Pennsylvania coals and this is no doubt the reason for the considerable increase in inquiries. However, these coals are still selling at the market.

The dealings in coal of the best grades have been extremely light, due mostly to the fact that the bulk of this production is being placed on contracts. The bulk of sales continues to be on Pools 10 and 11. There is also fair offering of unclassified coal.

Southern coal is coming into this market via Tide, but it is mostly deliveries on sales closed a long time since. New business of this kind is scarce, and buyers will at least hold off until July 1. There continues to be a plentiful supply of bunker coal, a good deal of which is accumulating demurrage, as shippers sent in supplies heavily some weeks ago in anticipation of a strong demand. The export trade remains very quiet.

FAIRMONT

Non-union production has become an important factor and the success attending the efforts of mines to operate as such makes it doubtful if there will be a return to a union basis. During the week ended June 10, there were 155 mines or more than one-third of the entire number in operation. During the same period there was an output of more than 120,000 tons.

BALTIMORE

There is no insistent demand, except in individual cases. There are some buyers in the mining regions who are entirely willing to take coal at any reasonable price and these purchasers, along with the curtailment of production, are holding the general market at rates considerably above the prices desired by Secretary Hoover. There has been a sharp decrease in the number of representatives of large consumers who were recently in the regions to secure tonnage. While some consumers are now apparently buying to cover in event of a rail strike, the vast majority do not seem to be at all concerned about the possibilities of a transportation tie-up.

Prices are not as high as they were some ten days ago. There is a strong feeling in the trade that the coals offering at Hampton Roads on the Hoover maximum are due for a jump. This is based on the theory that a decision of the Shipping Board to buy bunker supplies at Hampton Roads will cause a rising market. The Shipping Board has ordered its vessels, even those calling at New York to bunker at the Roads, to take advantage of that low market. Some of this coal will be bought in the open market.

UPPER POTOMAC

Although one or two mines have been shut down through the efforts of the United Mine Workers, other mines have resumed operations on a small scale and there is much activity on the Elk Garden branch of the Western Maryland. Despite assaults on miners, a few Georges Creek producers are still operating, having secured temporary restraining court orders. There is a stiff demand and most producers are adhering closely to the price agreed upon at Washington.

South

BIRMINGHAM

A goodly number of orders have been booked to be shipped into Western territory and also to competitive points in Georgia and Mississippi. Some tonnage is reported to have been shipped to Chicago and Pittsburgh. There is considerable inquiry from Western points and the demand from local territory is also somewhat better than it has been.

The Illinois Central bought from 500 to 750 cars to be shipped from Walker County mines and from operations on the Central of Georgia. Bunker business is very quiet.

Domestic coal is being taken fairly well on contracts and practically all Cahaba field mines have disposed of output for thirty to sixty days ahead. The lower grades are hard to move. Steam prices have changed very little, some slight increases being shown, as noted in the following:

	Mine Run	Washed
Black Creek	$2.00@$2.50	$2.25@$2.50
Cahaba	2.00@ 2.50	2.00@ 2.50
Big Seam	1.75@ 2.00	1.75@ 2.00
Carbon Hill	2.00@ 2.25	2.00@ 2.25
Corona	2.00@ 2.25	2.25@ 2.50
Pratt	1.75@ 2.25	1.90@ 2.25

There is a pretty heavy movement of coal in the district, furnace companies mining increasing quantities as additional stacks are being blown in to meet the active iron market. Local railroads are pretty well stocked up and as a rule are taking minimum amount of contracts, with the possible exception of the Frisco. Production is on a basis of approximately 320,000 net tons per week. Car supply is better, but labor shortage is being felt in some sections.

VIRGINIA

Car and labor shortage losses have cut down the production, but the output is still above 84 per cent. Car shortage losses are heavy on the Interstate and the Southern. "No market" losses have been almost eliminated under the pressure of heavier buying in the East. The demand, however, is largely for steam coal, domestic being shipped on contract only.

Anthracite

No Uneasiness Over Failure To Reach Wage Agreement

Some Inquiries Heard and a Few Orders Placed, but Partial Deliveries Are Rule—Larger Coals Running Short, Steam Sizes Cleaned Up—Demand for River Coal Improves.

THERE is a general absence of uneasiness, despite the failure of operators and miners to get together. The public is only mildly interested in the situation. Some consumers are making price inquiries and a few are placing orders for winter coal, but retailers are husbanding their supplies and generally make only partial deliveries.

The larger sizes are running short and there is a better sale of pea coal, which is moving some tonnage from mine storage. Canadians are inquiring about future deliveries and are seeking substitute supplies. Steam sizes are practically cleaned up or are on order and this has improved the demand for river coal, which has advanced in price.

NEW YORK

The wholesale market is fast becoming clear of the larger sizes, and this condition is reflected in many of the local retail yards. There are retail dealers, however, who have sufficient coal to last them well into July, most of it consisting of chestnut and pea.

Consumers for the most part want stove, and dealers are satisfying their wants as far as possible, at the same time trying to induce them to take part of the order in chestnut. When these sizes are cleaned up there will be little trouble in disposing of the pea coal.

The refusal of the miners to submit their differences to arbitration as proposed by the operators created only a slight interest with the public. The fact that there is no coal being produced to meet next winter's demand is receiving a bare passing notice.

Steam coals are growing scarcer. Continued demand has eaten into the reserve stocks and these are now showing its effect. Rice is hard to pick up while river barley is about the only coal in that size being offered.

BALTIMORE

Some dealers continue to lay up trucks as their stocks become depleted. Few of the dealers now have any considerable amount on hand, and the entire reserve in Baltimore is possibly not more than 3,500 tons. There is some increase in requests for coal, but dealers are merely booking such orders for the future without promise of time of delivery.

The most interesting thing to hard coal men at this time is the raising of the question of the right of the dealers to deliver a 2,000-lb. ton to consumers, if the same rate is charged for coal as for the long ton, thus protecting the rights of the consumer. The local dealers are not entirely a unit on the 2,000 lb. proposition under existing conditions, but the issue was raised by some announcing that they would sell a net ton. The State's Attorney of Baltimore has declared that any effort to sell a 2,000 lb. ton is illegal under both state and city law enactments, which require the delivery of 2,240 lb. He asked to have the police stop and weigh all loads of coal suspected of being less than 2,240 lb. and to report all violations to the grand jury.

ANTHRACITE FIELDS

The men are taking a vote to authorize their leaders to call a strike if they see fit. As far as can be learned every local is giving a vote in favor of a strike. However, some are recommending that the pumpmen, firemen and engineers be left on the job to protect the mines. Although the leaders state that the men will not accept a reduction in wages, from every part of the field the men seem to be more willing to consider a cut of ten per cent.

In the southern field a dealer sold 67 automobiles between April 1 and June 1, and of these, 43 were sold to men who are now out on a strike. Retail sales in the field have fallen off about 50 per cent. There is a continual stream of miners withdrawing savings deposits each week.

BOSTON

The trade shows no developments at wholesale. Shipments of egg and chestnut that were being made in some volume by one of the producing companies have now been practically suspended and pea and buckwheat are the only sizes left in reserve in any quantity.

Retailers are now taking "applications" rather than entering orders. Several of the distributors are down to what would be regarded only as a safe margin for hotels, hospitals and necessary public services.

PHILADELPHIA

There was a big increase in the number of inquiries at retail. People have been stirred by the reports of the operators and miners failing to agree and quite a few of those who have been waiting for lower prices now seem willing to take in coal if they can get it. The retailers have a fair stock of some sizes, although all of them are slowly running out of everything except pea.

Most dealers are still declining to fill a customer's full requirements, and inasmuch as the winter schedule of the past season is still in effect the consumer is usually willing to take what the dealer offers.

Dealers are slowly coming to the companies for some storage pea. Some dealers with a speculative bent are actually going in for quite heavy stocks of this.

In the steam sizes, while the companies do have some buckwheat in the storage yards, several of them are refusing additional orders, stating those already on the books are more than sufficient to take up the entire supply. Rice and barley are out of the market, while river barley is being freely offered and improving sales reported. The price for the river coal still clings around $1.75@$2.50, with the bulk being sold above the minimum.

BUFFALO

Scarcely any coal is moving through the city to local consumers and the Canadian trade is not any more active. All expectation of resumption of mining on July 1 has been laid aside. As a rule the date is figured at Sept. 1. If nothing happens before that time something will likely be done then to get a supply started, for there is good room for fear that with a small supply carried over it will be hard to mine enough after that to keep up during the winter.

Certain Canadians have been asking what they should do about the securing of a supply. Shall they buy as they did some years ago, soft coal, coke or anything that happens to offer, or shall they continue to take their chances? Apparently no very definite answer was expected and none was given.

West

KANSAS CITY

Some of the operating companies in this region are taking the production of the small mines and are having very little trouble in placing it, one company getting as much as twenty-five cars per day. However, it is all mine run and there is an increasing demand for slack or steam coal and little or none to offer. Prices on domestic and mine run are unchanged, while screenings are stronger.

The operators have held two meetings recently with the miners and adjourned, without doing anything. There is a great deal of loose talk as to what will happen when the stocks of coal are used up and the operators try to open the mines.

SALT LAKE CITY

Business here is very quiet now. Demand for slack continues, however, as a result of the improvement in the industrial situation. The domestic consumer is not worrying about the strike any more than he was on April 1 and practically no winter coal has been distributed so far. A year ago the dealers offered a 50c. reduction for a time in an effort to induce storage of coal, but only those who had to buy for current use seemed to get the benefit.

DENVER

The city has dropped the price of coal to consumers 95c. a ton for the best grades and 45c.@75c. for the cheaper grades. A new contract with the United Collieries Co. was given by J. J. Vick Roy, manager of municipal supplies, as the cause of the reduction.

Business appears to be on the increase and operators fear that they will be unable to supply the demand when the expected price reductions are made on July 1.

Chicago and Midwest

All-Around Price Slump Affects Entire Region

Strenuous Field Effort To Maintain West Kentucky High Level Fails—Jobber Group Gets Burnt Again—A 10-Day Lull Expected.

COAL prices in the Midwest passed the peak for June during the past week and slid down noticeably in most markets. A strenuous effort was made in the fields to keep the level up. This was successful for a few days when brokers made a sally into the Kentucky mining regions and picked up several hundred cars which they attempted to place in and around Chicago. When a large share of this coal got into distress and sold at a loss, buying in the field slowed down and with it went prices. The drop in western Kentucky, where operators are most obdurate in their intention of getting $4 for their output, became pronounced by the end of the week. A stern attempt to keep the field level at $3.90 showed distinct signs of failing when a few operators unloaded at a little less and even then found coal on their hands for which the demand was slight.

The general tendency of buyers is now definitely to withdraw from the market for the remainder of the month unless prices drop so low as to make coal attractive. A number of 30- and 45-day contracts and agreements, made by some of the biggest consumers, have practically removed them from the arena. Some of these buyers feel so sure of their position that they have let it be known that they will not feel bound by these agreements if the bottom begins to drop out of the market. Buying, these days, is just as unscrupulous as selling often is on a rising market.

From the standpoint of both the regular jobber and the operator who is jobbing "just to keep my hand in" there is one encouraging sign of late. Dealers and small consumers from all around this section of the land are making numerous inquiries. They are worrying. If the strike situation does not begin to clear itself soon, a buying rush is anticipated. This is one influence which may help to bring the market back to life within a couple of weeks. On the other hand, any definite move to end the strike would "knock the bottom out" and prices would slump.

Some disturbances in the Illinois and Indiana fields have drawn attention this week. A strip mine with 60 men working, is operating near Herrin, Ill., under machine-gun guard without interference and in Indiana a few small mines here and there are producing amid strikers' threats and some fist fights and rock throwing.

CHICAGO

A slow but steady softening of most coals on this market has set in just as was anticipated. During practically the entire week this weakening of quotations was noticeable and by Saturday it was pronounced. Many heavy buyers are stocked for the remainder of the month and are laying off until the drop in freight rates July 1. Some others, notably a few railroads and the railroad buying committee, have orders out covering shipments to be made for the next month or more. All of which takes out of the market most of the signs of life for the time being.

West Virginia coals, both high and low volatile, slumped 25c. or more to a level of about $3.25 for mine run and a shade less for screenings. Little eastern Kentucky spot mine run sold at over $3.25 by the end of the week. Some moved for a nickel less though lump brought as high as $3.50. West Kentucky suffered from the bear movement. Quotations, on the way down, passed $4 by the middle of the week and were pressing close to $3.65 when the week's trading ended. It was prophesied that this coal as well as all others on this market would drop a little lower next week. Many small and medium sized consumers are getting more and more anxious, however, and after July 1, if no settlement of the strike is in view, it is entirely possible that considerable bidding for coal will start. Dealers in this region have practically quit buying, hoping for a substantial drop. Their trade with householders is dead now, but they expect an early fall business if the strike lasts much longer, and few of them are stocked. Hard coal supplies are practically exhausted here.

INDIANAPOLIS

Retail coal prices in Indianapolis are stiffening a little. Prices at the mines in the non-union fields of West Virginia and Kentucky are around the $3.50 limit agreed on by the conference in Washington. When this higher priced coal arrives in Indianapolis and present stocks are depleted, similar rises in retail prices will take place.

The increases coming from the present higher mine prices are to be lessened somewhat after July 1 by the decreases in freight rates. These decreases, however, will effect appreciably only the big buyers of coal. The average reduction in the rate of transportation from working mines to Indianapolis will be only about 28c. a ton.

ST. LOUIS

Storage supplies are running a little bit low and there is more activity in outside buying. This, however, is only among the larger plants. Domestic buying is unusually quiet. Country call is slow except in isolated places where there is a little demand for steam.

The Southern Coal, Coke & Mining Co. on April 1 had about 50,000 tons of coal in storage and will clean up that storage this week. The Union Electric Light & Power Co., it is understood, on June 4 bought 15,000 tons of west Kentucky mine run at a price of under $4 at the mine. The Frisco railroad is understood to have bought some Alabama mine run under $2.

The past week has seen about 200 cars of Alabama coal sold in the St. Louis market for steam. There is, however, a slump on now. The Bell Coal & Navigation Co., of Sturgis, Ky., brought its first barge of Kentucky coal up the river last week for the Laclede Gas Co. of St. Louis.

The last of the Illinois coal is moving out at prices of from $4.25 for screenings to $4.75 for screened coal. Dealers are not buying non-union coal for domestic as yet, preferring to wait.

SOUTHERN ILLINOIS

There is comparative quietness in the southern Illinois Carterville field as well as that of Perry and Jackson County. All the commercial coal is gone, and practically all the railroad coal. Unmarried mine workers are continuing to leave the fields. There is poverty in some cases, but in a general way the miners are taking it easy.

In the Mt. Olive field there is still some coal held for contract customers. The tonnage is not great, and practically everything in the Standard field is about gone.

Indications at the present time are that within thirty days after the mines resume there will be a car shortage that will be a record breaker although the Missouri Pacific is getting most of its coal equipment in shape and some other roads are reported doing likewise.

LOUISVILLE

Quotations in the fields last week rose 15c. to 25c. on western Kentucky coal but orders were so light as to pull the price down again. Eastern Kentucky prices are weaker, as there has been a slump in railroad, steel mill and general industrial buying, consumers not showing a tendency to pay peak prices. As a result lump coal continues firm at $3.75, but mine run which last week was quoted at $3.50, today is selling $3@$3.50. Screenings are scarce at $3@$3.25.

Retailers are advancing prices, and quotations are $1@$1.50 higher than they were prior to the strike. However, retailers are not buying much coal.

WESTERN KENTUCKY

Inquiries continue good but consumers are refusing to close orders at the $4 level, resulting in little new business in the field. It is reported that some business has been taken at $3.90 a ton and less. Last week the market was $3.75, with $4 in sight.

It is claimed that jobbers and brokers last week bought up a great deal of tonnage, but found it no easy matter to dispose of it on the Chicago and other markets at the $4 level, with the result that demurrage is forcing lower prices. This slows down buying until mines short of business will be willing to take a more reasonable figure. Lack of railroad and large industrial orders is said to be felt.

Jobbers claim that they are able to sell on the dips, and could dispose of large tonnage at $3.50, but find that buyers are refusing to meet a price at much over that level. With the reduced freight rates effective July 1, there appears to be a tendency to hold down buying as much as possible until that time.

Northwest

Stocks Are About Gone and Interest Awakens

Many Docks Have Unloaded, Holding Enough Only for Long-Time Customers—Buyers for Railroads and Iron Mines Have Acquired Considerable Supplies.

DOCK stocks in the Northwest are practically exhausted by the constant drains of recent weeks. Railroad and mine buyers have been taking all they could get and shipments toward Chicago have done the rest of the damage. However, it is still possible the Northwest can get a full winter's supply, for it has been done before, though the feat is rather heroic. If dependence has to be put on railroads for this supply, there may be another obstacle to overcome. A car shortage has already begun to show itself. Dealers in back-country towns are expected to come into the market soon. They have held off during the last week or two presumably because of the high level of prices.

MINNEAPOLIS

The local papers of late have pointed out that available stocks of hard and soft coal on the docks are perhaps 15 per cent of the winter's needs and that it is going to be hard to get enough coal for the winter. While it has been argued that the Northwest cannot get a supply in less than four or five months, yet past experience has shown that although it is not easy nor comfortable, yet it has been done.

There is already quite a car shortage even though little coal is moving; it doubtless will be worse when the heavier demand of fall begins. Reports from the mines are that open-top cars are scarce. Railroads right now in Minnesota are furnishing box cars for shipping gravel because they are short of open tops.

The Northwestern coal market is about at a standstill. There is over 300,000 tons of hard coal on the docks, but 40 or 50 per cent of it is in unpopular sizes.

DULUTH

Stocks of bituminous coal on the docks as of June 1 aggregated 2,375,000 tons and of anthracite 385,000 tons. The docks were estimated to have only 780,000 tons of free bituminous coal on hand, or about one-third of the total supply at the beginning of this month.

This is regarded by dealers as showing a serious condition should the miners' strike continue for even a few weeks to come. Since the first of the month demand has increased greatly from mining interests and railroads.

The supply of soft coal is cut down by a continuance of cargo shipments to Lake Michigan ports for delivery to railroad companies. As a result some of the dock companies have practically disposed of their entire surplus supplies. Four companies have indicated that they are out of the market except to take care of customers of long standing. Dealers in towns throughout the Northwest are expected to start buying in a week or ten days, and this will easily exhaust surplus stocks held on other docks.

Lump is fluctuating around $7@$7.50, with the market nearer the top than the bottom. Screenings are high between $5.50@$6. Every indication points to a rise in prices rather than any lowering.

MILWAUKEE

With a known shortage of 318,931 tons of anthracite, and 471,386 tons of soft coal, as against last year's Lake receipts, it would be only natural that there should be a clamor for coal. The contrary is the case, however. Everybody seems to be holding off and the market is dull and depressed. Western Kentucky coal has been freely offered, but the price, $3.50 at the mines, is too high to entice dealers to taking it on in the present state of the market.

Receipts of soft coal by Lake thus far this season are far below those of last year. The record up to the middle of June is as follows:

	Hard	Soft
April	8,000	100,309
May	....	195,251
June	....	118,953
Total	8,000	414,513
Same period in 1921	326,931	885,899
Decrease	318,931	471,386

One cargo of 10,000 tons of soft coal was received from Superior, Wis. It was a case of shifting coal between two yards of the Great Lakes Coal & Dock Co.

The following are the retail prices at Milwaukee at the present time:

ANTHRACITE

Egg	$15.70
Stove	16.00
Nut	15.95
Pea	14.00
Buckwheat	11.50

BITUMINOUS

Pitts., Hock. and Yough. screened	$9.25
Pile run	7.25
Screenings	6.25
West Virginia screened	7.50
Pile Run	7.00
Screenings	6.50
Pocahontas screened	10.75
Mine run	9.25
Screenings	6.50
Kanawha Gas mine run	7.00
Illinois and Indiana screened	7.50
Pile run	7.00
Screenings	6.00
Coke, large sizes	13.00
Pea and nut	10.00

New England

Deadly Dull Market Lacks Even Relief of Bright Spots

Railroads and Industrials Interested Only in Monthly Quotas on Bargain Basis—Hoover Levels May Not Even Be Reached—Ample Supplies Seen in Non-Union Sources.

THERE are no bright spots in the current market. Trade hardly could be duller than it is at this writing. We rather doubt whether July will show any material change in the demand for steam coals. Neither railroads nor large industrials show much interest except in getting monthly quotas on low-price contracts and it remains to be seen whether the Hoover levels will be reached, let alone being exceeded. For the present at least it is clear that non-union mines in the Pocahontas and New River districts are amply able to supply current requirements in Tidewater territory in New England. And non-union mines in Pennsylvania shipping all-rail can take care of the rest, on the basis of present-day consumption.

Receipts both by water and all-rail continue relatively rather light. Doubtless this is partly due to the reduction of 10 per cent in railroad tolls, effective July 1, but to trade and manufacturing conditions here there is no snap whatever. The vacation season is on and all hands seem determined to take it easy for the next two months, if not longer. Meanwhile, contract shipments are coming forward in fair volume, and some of the agencies are wondering why they didn't sell more at early season figures.

Efforts to reopen textile mills where unions are supporting a strike are only moderately successful. There is only a light demand for goods and so many plants of this kind are now using oil that the reaction, when it comes, will not mean a very largely increased call for coal. The railroads are of course using less per diem during these days of small traffic and it is hard to see any indication as yet of the long-awaited improvement.

Except for gas coals from Philadelphia and Baltimore, receipts here by water are almost exclusively from Hampton Roads. At the terminals there the accumulations are still heavy and the spot market rather sluggish. Prices are little, if any, above the $6 level f.o.b. vessel at the piers, and there if a feeling among buyers here that by waiting until July for hand-to-mouth purchases they will at least save the 28c. that is to be taken off rates from the mines to the Roads.

Coastwise freights show no change from the figures previously quoted, 90c. @$1, depending on size, being the market quotation for steamers and large barges. Smaller craft secure a differential over that.

Eastern Inland

Strike-Settlement Gossip Has Unsettling Market Effect

Prices Fall and Demand Wanes, Save for Connellsville Coal, Which Is Strong With Quotations Firm—July Freight Cut a Deterrent—Lake Buyers Perk Up as Prices Sag.

RUMORS of attempted strike settlement have broken the market, except for Connellsville coal, which is still going strong with firm prices. Elsewhere prices have dropped and demand has waned. West Virginia and Kentucky coals have dropped as much as 75c. A further deterrent is the freight rate reduction on July 1, which is causing all buyers who can do so to stay out of the market during the balance of June. Lake buyers are becoming more active as prices decline.

CLEVELAND

Indications that the strike will be settled soon and that union mines may resume operation by July 1 have completely demoralized the coal market in this district. Non-union coal is in abundant supply, a considerable amount being left on tracks with no takers. Price declines have been drastic. A week or so ago consumers were paying $3.75@$4 for Kentucky and West Virginia coal. That fuel is going begging at $3.25. Ohio wagon mine coal formerly was $4 and now is quoted $3.50.

Consumers apparently are convinced that production will soon be under way in full swing. In addition they expect to derive some price benefit from the freight reduction due July 1. These considerations combined have brought about the present slump. Any threatened breakdown in negotiations for peace would cause a scurry to buy coal. Stocks are getting lower each week and the famine point is not many weeks distant. Plant operations continue good but further expansion is hardly to be expected during the summer months. In fact automobile and steel mill operations may sag slightly in July and August.

The Northwest continues to grow more anxious about its supplies and operators are just as anxious to start production and begin the movement up the Lakes. Less than 2,000,000 tons have been sent and about 20,000,000 tons are needed. Every week's delay will make it that much more difficult to get coal to the Northwest in ample quantity.

NORTHERN PANHANDLE

Since the beginning of proceedings against some of the strikers who have been active in trying to force a suspension of operations and since those awaiting trial have been put on their good behavior there has been less trouble in Ohio, Brooke and Marshall counties and mines are maintaining production at about the level of 60,000 tons a week. The market is absorbing all the coal available. Railroads are utilizing a large tonnage.

BUFFALO

The price is going up and the sensational shipper is saying that it will go on up steadily from now to the time something radical comes in to stop it. At the same time the consumer is holding off as much as he can, for the reduced rail rates are to cut down the price a matter of 25c. a ton to this market. Actual demand will increase considerably as soon as July comes in and the operators seem likely to take advantage of the stir.

Even the cautious shipper is usually advising consumers to buy now if they have only small stocks. At the same time there is the contradiction of quite a large amount of coal standing on track at times unsold. The wise buyer can generally get what he wants from that source, though he may not always know what the quality is.

Prices are strong at $3.75 for slack to $4.25 for ¾-in., with Pittsburgh operators quite often asking $4.50. Our shippers report that they have not been able to get the asking price yet, but they seem to be expecting that it will be paid before long.

Lake receipts of Pocahontas from Ohio ports were 42,100 net tons last week, the falling off being at least in part because some of the local docks are badly congested, with several cargoes waiting.

EASTERN OHIO

Inquiries have noticeably diminished and demand is at a minimum. The underlying cause for this situation is said to be due to the various rumors predicting an early settlement of the strike. Likewise, the great majority of consumers have sufficient coal on hand to carry them some weeks yet and they are safeguarding against having a lot of high-priced coal on hand when mining is resumed at a lower production cost, together with reduced freight rates which are to become effective July 1.

Eastern Ohio stripping mines are producing something over 50,000 tons per week since issuance of permanent injunction by the Federal Court at Columbus, restraining union miners from interfering with or intimidating employees. Such wagon mines as are producing are said to be furnishing fuel to the nearby industries, but no estimate is available as to the extent of their output.

In the Lake trade, shipments continue light, the fleet having loaded only 283,531 tons of cargo coal last week as compared with 1,033,684 tons the same week last season. Shipments for the season up to June 12, were 2,565,176 tons, or 4,132,750 tons less than for the same period of 1921. Shipments for the same period of 1920 were 2,284,033 tons.

Receipts of bituminous coal at Cleveland during the week ended June 10 were slightly in excess of those of the preceding week, total arrivals being 994 cars, 913 cars of which were for industries and 81 cars for retails yards.

PITTSBURGH

The most important developments in the strike situation in the past week occurred in Illinois and Indiana, where the operators publicly committed themselves as being permanently opposed to a four-state agreement on wages. The position of these operators had been known in the trade, but the public position of the Pittsburgh and southern Ohio operators, who formally declared against the four-state agreement last January, has been strengthened. The Pittsburgh district operators are observed to be a unit in this matter as well as in their determination not to accept the check-off again.

The invitation sent by the Pittsburgh Coal Producers' Association to District No. 5, U. M. W., promptly declined by the latter, was assumed in many quarters to be a preliminary step to an effort to reopen some of the mines in the district, but no developments in this direction have thus far occurred. It is still thought probable that at any moment some moves in this direction may be made.

The chief trading in the local market is in Connellsville coal, which has readily maintained the advance scored a week ago, being quotable at $3.75@$4 for steam grade. Byproduct does not seem to be offered. The non-union strikes in the Connellsville region are holding out very well, the increase in production being very slow.

COLUMBUS

There is still a rather unsteady market due to the fact that consumers generally are waiting until after the reduction of freight rates July 1. Only such users that must have stocks at present are in the market and this demand is not nearly as strong as formerly. Prices range slightly below the Hoover figures. Some distress coal is reported at certain points, but on the whole there is not much tendency to reduce prices.

Buying for utilities and railroads is the best feature. Retail prices are steady at former levels, with Pocahontas lump around $7.50@$7.75 and West Virginia grades, $7@$7.50.

Lake trade is progressing as rapidly as could be expected under the circumstances. The H. V. docks loaded 865,520 tons to June 15.

DETROIT

Buying of bituminous coal continues on a small scale, with very little demand for either steam or domestic sizes. There is not much coal coming in, but jobbers say free coal is not difficult to find when it is required. One of the reasons for deferred purchases is the postponed application of the reduction in freight rates.

In this connection the jobbers are of the opinion that there is likely to develop so extensive a demand soon after the rate reduction occurs that the buyers will find themselves paying mine prices that will make their coal more costly than with the present freight charges. Practically no business is being done in domestic coal. So far, the retailers have made almost no start on distribution of coal for next winter's requirements.

Cincinnati Gateway

Offerings Cause No Rush Of Buyers; Sag Continues

June Steel-Mill Requirements Provided For, Market Is Flat—L. & N. Places Embargo on Return of Empties—Smokeless Moves Inland in Heavy Volume.

THE first upward climb that followed the announcement of Secretary Hoover's maximum prices went the limit and values have fallen back. Steel people have apparently covered their June requirements and buying is nil. The beginning of the week saw coal being offered without any great rush of buyers and the sagging continued to a point where the L. & N. R. R. was called upon to place an embargo against the return of empties to the mines in the Harlan and Cumberland area because of the number of loads that were standing without orders. Smokeless is coming Inland in heavy volume, as the Tidewater market is less attractive.

CINCINNATI

The drop in high-volatile prices allowed some of the Lake buyers to get in the market again but those in Cleveland and Toledo refused to go higher than $3 and while this is being written the softness there has an indication that this is the top and if there is any great rush of tonnage in response there will be lower prices. Steel plant buying is almost nil. Retailers will not come in the market until the reduction in freight rates.

The smokeless situation is about in the same boat with the bituminous. Tidewater business has settled down to the same old grind and in consequence the heavy volume has again turned Inland. Some of the old line companies are holding to the Hoover maximum but with concessions. Others that have been leaders in reductions have dropped to a high-volatile basis. Some domestic business is being booked for the beginning of July and if there is a much further drop it is likely that a good many mines will return to sizing their coal.

There has been no change in the retail situation. Various suggestions that the local prices should be advanced to meet the maximum that was placed in Washington have fallen on deaf ears and most of the companies are booking orders for deliveries clear up to October on the following basis: Pocahontas lump $8, mine run $6.50@$6.75, bituminous lump, $6.75 and slack, $450@$5.

SOUTHEASTERN KENTUCKY

Buying is not so keen as it has been. Best mine run has dropped back to $3, while some of the lower grades brought around $2.75@$2.85. Block is coming back into notice, there being a ready demand at $3.50@$3.75, while egg is not far behind. Announcement has been made by the L. & N. that there would be no further cars furnished at the mines this week, on account of necessity of cleaning up congestion between mines and Cincinnati.

HIGH-VOLATILE FIELDS

KANAWHA

Despite interference on the part of striking miners, production is being gradually increased. The bulk of the production is coming from the small mines and from a group protected by an injunction. Demand is principally for steam coal. There does not appear to be any chance of an agreement in sight and producers are operating wherever there is any sentiment among the miners favoring a resumption.

LOGAN AND THACKER

Production continues on an unusually large scale in the Logan field. May established a new record but one which operators believe will be exceeded during June owing to a well sustained demand. The only factor standing in the way of a large tonnage is the need for more men. The market is active and there is comparatively little free coal now available.

Kenova-Thacker mines are loading more coal than they ever did. No efforts are being made to interfere wtih operations in view of the injunction still in effect. Producers are finding a ready market for their output, the greater part of which is flowing to Western markets and to the Lakes.

NORTHEASTERN KENTUCKY

Buying is on a heavier and steadier scale now that the general situation has become more stabilized through the fixing of prices. Not only are the railroads taking much coal but there is also a brisk demand among industrial concerns. More men could be utilized, as labor shortage losses amount to about 16 per cent.

LOW-VOLATILE FIELDS

NEW RIVER AND THE GULF

New River Mines are producing more than at any time since the beginning of the strike. Miners within the last week or so have been comparatively free from interference. Incentive for heavier production is to be found in a growing demand. There is a better movement, particularly to Eastern points.

In the Gulf region production is on a larger scale than at any time in the history of the field, having almost reached 200,000 tons a week. Lack of man power is still the most serious factor in retarding production. Tidewater shipments have been increased and dumpings are unusually heavy.

POCAHONTAS AND TUG RIVER

Pocahontas output is averaging close to 450,000 tons a week. It is simply a question of securing more men, since labor shortage losses now amount to about 80,000 tons a week. There are no "no market" losses in this territory. The movement to Eastern and Western markets is heavy and the demand at Tidewater has been growing.

Conditions remain unchanged in the Tug River field, mines producing at the rate of about 90 per cent of capacity. Mine disability alone stands in the way of 100 per cent production. Mines are sending rather large tonnage to the Lakes and are also marketing a heavy volume in the steel districts.

Coke

UNIONTOWN

The situation is relatively unchanged with the exception that conditions in the homes of many miners have become acute and that the operators are using more aggressive action. Evictions of strikers are now proceeding daily and in large numbers. At Alicia plant of the Pittsburgh Steel company last week 43 families were evicted in one day and in some instances the families of workers were waiting to move into the house immediately.

The market continues strong with the team-truck mines resuming since the Hoover price of $3.50 is not operative in this district. A maximum of $4 has been reached for coal and there is no difficulty in selling all that is offered, principally among steel interests. Buyers are not particular as to quality and the tops of some of the cars leaving the region show a varied assortment which could not pass inspection in normal times.

CONNELLSVILLE

The trend in blast furnace operations is upward. Offerings of Connellsville coke do not seem to have increased, although production tends to gain steadily. Contract shipments absorb a large part of the merchant output and there is probably some coke moving from producers to regular customers at adjusted prices, without passing through the open market.

There is much latent demand for coke, i.e., there are not only many furnaces that would buy if they could get a price somewhat around normal, but also some furnaces that would probably pay approximately present prices if at the same time they could be assured of a regular supply. But it is not considered feasible to try to start a furnace and operate it on prompt lots picked up from time to time.

Demand for foundry coke continues relatively light and consumers are not bidding up the market, although prices are a shade stiffer than a week ago. Quotations stand at $7@$7.25 for furnace coke and $7.50@$7.75 for foundry.

The *Courier* reports production during the week ended June 10 at 45,288 tons by the furnace ovens, and 13,375 tons by the merchant ovens, making a total of 58,663 tons, an increase of 10,193 tons, representing a recovery from the holiday week.

BUFFALO

Local iron furnaces are busy, but the by-product coke ovens are also quite as busy and the supply meets the demand. The furnaces are surrounded by huge piles of supplies. The amount of iron shipped out is large. Coke quotations continue at $7 for 72-hr. Connellsville foundry, $6 for 48-hr. furnace and $4.50 for stock.

News Items From Field and Trade

ALABAMA

The Arco Coal Co. has been incorporated in Tuscaloosa, and has leased about 1,440 acres of coal lands about twelve miles from that point near the L. & N., from which the coal will be mined by the hydraulic stripping process. The company is capitalized at $20,000. J. D. Henerson is president, A. C. Smith, vice-president, and Fleetwood Rice, secretary. Headquarters will be in Tuscaloosa. Development work will be started at once.

The Alabama By-Products Corporation, Boyles, has let a contract to the Koppers Company, of Pittsburg, for an addition of twenty-five Koppers ovens to its present plant, at a cost of $1,250,000. This represents an increased capacity of 50 per cent and will enable an annual production of about 365,000 tons of coke or a consumption of 550,000 tons of coal, which will come from the mines of the Majestic and Imperial coal companies, subsidiaries of the corporation.

The Montevallo Mining Co., through David Roberts, trustee, has entered into a contract with the State of Alabama to use convicts for an additional term of three months on basis of the rates in effect prior to the receivership, when the convict labor was temporarily suspended and the contract abrogated. The question of reinstatement of the contract and dissolution of the receivership is now pending before the United States Court of Appeals, New Orleans.

CONNECTICUT

The Berkshire Mill Coal Co., Bridgeport, was organized recently by the election of the following officers: James A. Barri, president and treasurer; R. S. Terry, secretary and assistant treasurer. Messrs. Barri and Terry, together with William B. Boardman, constitute the Board of Directors. The concern was recently incorporated and will carry on a general coal business with yards on the Pequonnock River.

ILLINOIS

In the foreclosure proceedings of the **Smith-Lohr Coal Mining Co.,** of Pana, a decree has been entered against the company for $185,937. M. H. Seiler, of Pana, has been appointed receiver. Ora H. Brown was appointed special master-in-chancery to sell the property unless redeemed in 20 days.

John A. Garcia, mining engineer, has left Chicago for Utah where he is to examine some large coal and iron deposits in prospective development. He expects to go on to San Francisco to report after he has completed his field work and thence to New Mexico, where the Allen & Garcia Co. is building a very large skip-hoisting mine for the Gallup-American Coal Co., Gallup. Mr. Garcia expects to return to Chicago about July 5.

The Union Colliery Co., of St. Louis and Chicago, was recently awarded the sum of $1,500 in a lawsuit against the State of Illinois. The new state highway, which is now under construction near the company's mine yards at Dowell, cuts directly across the mine yard tracks and the company was claiming damages to the amount of from $200,000 to $400,000.

J. M. Dillavou, head of the Harris-Dillavou-Dimond Co., Chicago, was in the southern part of the state recently visiting mines operated by that company.

The Springfield-Athens Coal Co. recently filed dissolution notice with the secretary of state and will discontinue business.

Thomas Horn, West Frankfort, in charge of the mines of the Southern Gem Coal Corporation in southern Illinois, was a recent visitor in the main offices of the company at Chicago.

The Steamship Fuel Co. has established a Norfolk office with J. H. Gibson in charge, to deal in general coal business, domestic and export.

George H. Loeb, formerly manager at Norfolk for the Central Pocahontas Coal Co., and now connected with the Cincinnati office of this company, was in Norfolk recently.

The American Coke & Chemical Co. will put down two test holes in the vicinity of McLeansboro. This company has purchased a number of options on Hamilton County coal lands. It is expected that some extensive coal prospecting will be done in this vicinity in the next few years.

INDIANA

Hiram L. Ireland, of Princeton, has filed a suit for $30,000 against the **Francisco Mining Co.,** alleging that the company has removed 10,000 tons of coal from mines which extended under his land. He values the coal at $3 a ton and asks damages in the amount of $30,000, also a restraining order demanding that no further mining be done under his land.

Fight for the control of the stripping fields in southern Pike County started recently when the **Enos Coal Co.** brought suit against Claud E. Beatty and V. E. Beatty, to compel them to cancel a deed made to Gray Brothers, of Evansville, and sell to them, under a prior contract, ninety acres of coal land in Monroe township, on which the Enos company already has constructed a lake, twenty-five acres of which extends on the Beatty land. The Beattys obtained an option on the ninety acres last year for $7,125, of which $2,500 was paid in cash and the balance to be paid in one year. In the meantime the Enos company took over the holdings of the Cummins Coal Co. and built a large lake on part of the Beatty property, installing pumping stations and pipe lines. After the year had elapsed and the Enos company had not paid the balance due on the purchase price to Beatty, he sold the same land to R. R. Williams, representing Gray Brothers, for $10,000 cash. In making the sale, one-half of the Enos company's lake was included in the deal. The Enos company immediately filed suit to enjoin Gray Brothers from entering upon the property and interfering with the work of the Enos company and are also asking that the deed be set aside on the grounds that the defendants failed to give it an abstract of title within the year. The company deposited with the clerk of the Pike Circuit court, $4,625, balance due Beatty, and are asking that the sale between Beatty and Williams be set aside.

A mob estimated at 400 persons left Terre Haute recently in automobiles after announcing their intention of closing every coal mine in operation between Terre Haute and Brazil. The first stop made was at the Jones Mine near Staunton, where two trucks loaded with coal were seized and the contents dumped into the road. Two guards at the mine were disarmed by the men when they entered the mine. The men also visited the Robert Hughes Mine, five miles from Terre Haute, but the shaft was found to be deserted and the crowd moved on.

KENTUCKY

A number of new coal companies have been chartered recently. Among the newcomers are: **Excelsior By-Product Coal Co.,** Pikeville, $125,000; Charles K. Wagner, Robert Wallace, C. C. Frazier and H. B. Wright; **George Coal Mining Co.,** Middlesboro, $600,000; M. L. George, J. W. Wilson and C. W. Miller; **Finley Coal Co.,** Madisonville, $35,000; Thomas E. Finley, Ella Campbell Finley and Curtis B. Johnson; **Bermuda Coal Co.,** Chavies, $100,000; Carol Robinson, M. L. Stone and Lewis E. Harvie.

The Mahan Jellico Coal Co. is building a new tipple at Packard to replace the one destroyed by fire April 13. The new tipple will be 80 ft. long and 50 ft. wide. The tipple will be of steel and will cost from $18,000 to $20,000. The company has offered a reward for information leading to the arrest of persons who fired the old tipple.

At a second sale of the **Boyce Coal Co.** property ordered by the courts, **Thomas E. Finley,** Madisonville attorney, was the highest bidder and the holdings were knocked down for him for $17,000. Mr. Finley said that he would organize a company to be known as the **Finley Coal Co.,** to be composed of himself and his three sons as incorporators.

MASSACHUSETTS

The Miller Coal Co., Inc., Boston, has been incorporated to deal in coal. The company's capital stock is $50,000, and the incorporators are: Fred Miller, Newton; Charles W. Gammons, Cohasset; Irvin McDowell Garfield, Boston; Alexander Whiteside, Boston, and Joseph W. Glidden, Newcastle.

MISSOURI

A petition in equity has been filed in the Macon County Circuit Court by Ernest Frederick and Sadie M. Frederick against Joseph Gates and Lillian P. Gates. The parties to the suit are owners of the **Star Coal Mines** at Bevier, the Fredericks having a two-third interest and the Gates a one-third interest. The petition asks for a dissolution of the partnership and an accounting. It recites that the parties have disagreed and that the defendants have stopped the payment of funds in the bank, necessary for the conduct of the business. The company's property at Bevier is estimated to be worth $60,000 to $70,000.

The Cable Coal Co., at Connellsville, has resumed operations, according to J. T. Hatfield, an officer in the company. He says the company is a co-operative concern and for that reason withdrew from the union, but said it was not a non-union coal mine.

A coal boom is likely to develop the west side of Randolph County and will be carried into effect as soon as the present coal strike is called off. Men with drills are now at work locating the coal veins.

L. S. Harlan, president of the Clifton Hill Banking Co., has devoted considerable time to the proposition and has secured options on several thousand acres of coal lands where it is expected the coal field will be developed. This land lies north of Clifton Hill and extends up to the Thomas Hill country. It is known that several prominent citizens of Bevier and Macon have large coal interests north of Clifton Hill and will put forth every effort to develop this field.

A special meeting of the stockholders of the **Callaway County Coal Co.,** which has mines at Carrington, will be held this month for the purpose of electing directors and to vote on a resolution to dissolve the company, close up its affairs and dispose of its assets. F. L. Crosby is president of the company, and Carter Norris, of Fulton, is secretary. The meeting was called at the request of a majority of the directors and stockholders.

NEW YORK

The Consolidation Coal Co. has announced the appointment of **Walter D. Barrington,** of New York, assistant engineer of tests, as consulting sales engineer with headquarters in the Munson Bldg., 67 Wall St. Mr. Barrington formerly lived at Fairmont, W. Va.

S. G. Symons, purchasing agent for Cosgrove & Co., Johnstown coal operators, attended the recent annual convention of the National Association of Purchasing Agents at Rochester. A standard contract for the use of the members was adopted and the buyers there were very optimistic with reference to the national coal strike.

A visitor in New York during the early part of June was **Harry B. Clark,** identified with the Clark coal interests of northern West Virginia.

George Otis Smith, director of the Geological Survey, and **Hugh Archibald,** mining engineer and author, were the witnesses at the hearing of the Public Committee on the Coal Strike, held on June 13, at the Engineering Bldg., New York City.

Willis H. Brown, who has offices at No. 1 Broadway, New York, has gone to his cottage on the shores of Lake Ontario for the summer.

Frederick J. Kerner, who for some time was the manager of the export department of W. A. Marshall & Co., has organized the **F. K. Kerner Coal Co., Inc.,** with offices at No. 1 Broadway, New York, and will conduct a general wholesale coal business.

OHIO

The Sunday Creek Coal Co., Athens, has announced that it has withdrawn from its stand of no check-off for pumpers employed at its various mines during the time of idleness. When the strike was declared the company sought to have its pumpers withdraw from the union and be employed as assistant superintendents, but this policy failed and now the pumpers are being employed at the regular scale with the check-off in vogue.

The Columbus Board of Education has rejected coal bids recently received for approximately 10,000 tons of lump for the various school buildings and has readvertised for bids to be opened July 6. It is hoped that lower prices will be secured at that time.

The Colonial Fuel Co., Columbus, chartered about six months ago with an authorized capital of $25,000, has been organized to take over the retail business of the Colonial Coal & Supply Co., of Columbus. W. H. Plant is at the head of the company.

President W. M. Puckett, of the Cabin Creek Consolidated Coal Co., with headquarters at Charleston, spent the early days of June in Cincinnati on business.

Geo. H. Ewald, president of the Standard Tide & Inland Coal Sales Co., with headquarters at Charleston, was a business visitor in the Cincinnati market during the early days of June.

The Liggett Coal Co., with a paid-up capital of $75,000, has been formed with Harry Liggett as president, Harry S. Adkins, as vice-president, and G. P. Foley, as secretary, to take over mining properties in the Hazard district. While this is a Kentucky corporation the offices will be maintained in Cincinnati and the bulk of the coal will be moved to take care of the retail trade of the Liggett Bros. Coal Co. This Cincinnati concern is building new hoppers and will expend about $20,000 in the improvement. The coal properties will be improved by an expenditure of twice that amount as soon as feasible.

Sam Matz, of Raven, W. Va., operating head of the Red Ash Pocahontas Coal Co., was in Cincinnati recently, as was **Herman Everett**, sales manager of the Smokeless Fuel Co., who visited his local office, the Western Coal Co.

S. McBeth, who for some time was connected with the Tuttle Coal Co., takes the place of **George H. Loeb** with the Central Pocahontas Coal Co., in Cincinnati, who has been transferred to take charge of that company's office at Norfolk.

PENNSYLVANIA

Robert Y. Williams, general superintendent of the Hudson Coal Co., has been elected president of the Rotary Club, Scranton, for the yearly term, beginning May 1.

The Concordia Electric Co., Pittsburgh, manufacturing the cap lamp, Bureau of Mines Permit No. 15 in June, 1916, under Schedule 6A, has secured two new Bureau permits under Schedule 10A, on its electric hand lamp—one for hand lamp service and one for trip lamp service.

Judges Buffington and Thompson, of the United States District Court in Philadelphia, have entered an order permitting the Continental Insurance Co. and the Fidelity-Phenix Fire Insurance Co., both of New York, to withdraw their petitions, filed Dec. 9, 1921, to set aside the sale by the Central Railroad Co. of New Jersey of its **Lehigh & Wilkes-Barre Coal Co.** stock to the Reynolds syndicate, under the Reading dissolution plan. The order also grants permission to Isaac T. Starr and Mary W. T. Starr to intervene in the Reading dissolution case for the purpose of asking the court to set aside the sale of the L. & W. B. stock, both the railroad company and the Reynolds syndicate having ten days in which to file answer.

Seven striking miners arrested at the operations of the **Big Bend Coal Mining Co.**, at Twin Rocks, Cambria County, during a disturbance at the mines, waived hearings before Justice of the Peace C. P. Roland at Ebensburg and were released on bail for their appearance at court on charges of riot and assault.

Twelve families of striking miners were evicted in the vicinity of the **Reading Mine** at Stoystown, Somerset County. The union is providing tents to shelter the families.

As a result of a demonstration staged by striking miners at the mines of the **Huskin Coal Mining Co.** at Cairnbrook, Somerset County, information was made against 21 men charging trespassing on company property. The warrants were served by Sheriff John W. Griffith, of Somerset County. The men arrested were all strikers from the Shade Coal Mining Co., at Miller Run and, it is alleged, they interfered with the men while at work for the Huskin company. At a hearing before Justice of the Peace Patton at Windber, each was fined and compelled to pay the costs.

One mine foreman of the Lehigh Valley Coal Co. was instantly killed in a recent explosion of gas, which occurred in the Coxey shaft, and another mine foreman was slightly injured.

Walter J. Evans has been appointed manager of the Philadelphia sales office of the Webster Manufacturing Co., with headquarters at 719 Commercial Trust Bldg.

The following bituminous coal companies have filed notice at Harrisburg of increases made in their capital stock: **Acme Coal Mining Co.**, Centre County, $300,000 to $695,000; Samuel Shavit, treasurer; **Ferrier Run Coal Co.**, Cambria County, $50,000 to $100,000; **Mahoning Coal & Coke Co.**, Fayette County, $5,000 to $50,000, K. K. Kramer, president; **The Bowman Coal Mining Co.**, Allegheny County, from nothing to $100,000.

TENNESSEE

Announcement has been made that the **Dayton Coal & Iron Co.**, Dayton, has been reorganized and that the entire plant would be placed in operation as soon as possible. Arthur N. Wickshire is president, John T. Pell, vice-president, and Harry I. Sheldon, treasurer, all of New York. The plants have been idle for a year, due to financial difficulties, having been in the bankruptcy court and changed hands several times. Besides all the mines, two furnaces which have been idle for some years will be blown in, a new vein of coal recently discovered will be worked and coke ovens fired. The miners at Dayton have never been organized and no trouble is expected in securing labor.

J. Martin Adams, J. M. Adams, Franklin Adams and M. D. Duke have acquired the property of the **Martin Coal Co.**, of Martin. The plant of the company will be overhauled and enlarged.

TEXAS

The Liberty Grain & Fuel Co. has been organized at Dallas to conduct a general grain, coal and wood business; capital stock of $30,000. The incorporators are: G. M. Patillo, L. G. Patillo and W. E. Conn.

Development of lignite beds between Dallas and Greenville will be started immediately by the Lignite Industries Corporation, of St. Paul, Minn., according to the president of the corporation. Six plants will be built in Texas for treating lignite. These plants will be located at Dallas, Fort Worth, Houston, Galveston, Greenville and one other city yet to be selected. Options have been obtained on 100,000 acres of lignite land in Texas. It is planned to form a separate corporation in Texas to be known as the **Texas Lignite Co.** to handle the Southern development.

UTAH

A mine guard was shot and killed and the general manager of the **Standard Fuel Co.**, of Standardville, and an unidentified Greek miner were wounded recently when a railroad train carrying new miners to the company's mine was fired on by men in ambush.

Governor Mabey, on learning of the shooting, sent National Guard troops to the coal area and issued a proclamation declaring martial law in the Carbon County district.

VIRGINIA

E. O. Parkinson, of the Pocahontas Fuel Co., headed a group of coal men who presented a silver loving cup to **Norman R. Hamilton**, retiring collector of customs, who concluded eight years in that office June 1.

O. B. Ferebee, of Nottingham & Wrenn; **J. G. Miller**, of Raleigh Smokeless Coal Co., and **T. M. Bailey**, of Virginia Smokeless Coal Co., represented Norfolk coal men at the recent Hoover conference in Washington.

WEST VIRGINIA

General improvement in the coal industry was reflected in the months of March and April by a growth in the number of new companies launched. In March there were nine new coal concerns organized and in April nearly twice as many. The aggregate capitalization of new companies formed in March amounted to $1,900,000 and the aggregate for April was $1,055,000. One of the new coal enterprises has a capitalization of $1,000,000. Companies organized, in March and April, together with the capital stock, are: **Onondaga Splint Coal Co.**, Charleston, $100,000; **Lockview Coal Co.**, Morgantown, $350,000; **Keystone Coal Co.**, Charleston, $150,000; **West Virginia Gas Coal Co.**, of Shinnston, $1,000,000; **Acme Coal Co.**, of Shinnston, $50,000; **Blocky Pittsburgh Coal Co.**, of Morgantown, $100,000; **Alliance Coal Co.**, Core, $50,000; **Alley Branch Coal Co.**, Chattaroy, $75,000; **Taylor Fuel Co.**, Morgantown, $25,000; **Good Hope Coal Co.**, Grafton, $25,000; **Dean Coal & Mining Co.**, Elk Garden, $150,000; **Huntington Coal Distillation Co.**, Huntington, $250,000; **McRoss Smokeless Coal Co.**, Logan, $75,000; **St. George Coal Co.**, Julian, $25,000; **Pocahontas Red Ash Coal Corporation**, Iaeger, $50,000; **J. A. Wood Coal Co.**, Amigo, $50,000; **Raleigh Smokeless Coal Land Co.**, Beckley, $100,000; **North Branch Coal Co.**, Piedmont, $60,000; **Elkhart Fuel Co.**, Charleston, $10,000; **Fulton-Glenwood Coal Co.**, Wheeling, $10,000; **Burdett Fuel Co.**, Morgantown, $25,000; **Groves Block Coal Co.**, Wheeling, $10,000; **Great Western Coal Co.**, Des Moines, Ia., $100,000; **Southern Elkhorn Coal Co.**, Huntington, $100,000.

The following West Virginia coal concerns have recently been granted authority to increase their capital stock in the amounts given: **Chesapeake Coal Co.**, from $250,000 to $1,000,000; **Bull Creek Mining Co.**, from $100,000 to $150,000; **Margarette Coal Co.**, from $300,000 to $500,000; **Winner Gas Coal Co.**, from $50,000 to $150,000; **Kanawha City Coal Co.**, from $150,000 to $300,000.

The West Virginia Coal Co., a foreign corporation, has withdrawn from West Virginia.

The following West Virginia coal companies have discontinued their business and their corporate existence has been dissolved: **Shawnee Coal & Coke Co.; Rosebud Coal Mining Co.; Cleveland Gas Coal Co.; Black Star Coal Co.; W. P. Rend Collieries Co.; W. P. Rend Coal & Coke Co.; Fairmont By-Products Corporation.**

The D-K-C Coal Co. has been launched by A. J. Dalton, J. A. Kelly, John F. Grossenbach, G. M. Angell and E. L. Hogsett, of Huntington, this company to have its headquarters at Huntington. Mr. Dalton, Mr. Kelly and his associates recently completed negotiations for 52,000 acres of coal and timber lands in Wyoming County. No plans for the development of the acreage purchased has been announced yet.

Offices have been opened in Clarksburg by the **Will-Earl Coal Co.** which was recently organized with a capitalization of $10,000. Interested in this company are E. O. Horner, E. Rogers, E. T. Rogers and E. A. Bartlett, all of Clarksburg.

The West Virginia Coal & Coke Co., which has a number of mines in northern West Virginia, has been successful in starting operations at its mine at Bower on the Charleston Division of the Baltimore & Ohio.

Price and production representatives of Secretary Hoover in the smokeless territory are **E. E. White**, of Glen White, chairman and representative of the Winding Gulf field; **W. C. Atwater**, of New York, for the Pocahontas field; **William McKell**, of Glen Jean, for the New River field; **C. C. Morfit**, for the Tug River field. **George Wolfe**, of Beckley, is secretary of the committee.

William McKell, of Glen Jean, president of the McKell Coal & Coke Co., spent a few days in Washington late in May, being in attendance at the price conference held there.

H. V. Ingham, superintendent of the Howard Colliery at Chattaroy, has resigned. He will be succeeded by **Will Davis**, who for a year or more has been connected with the South Williamson plant of the Norfolk & Western.

In order to prevent a recurrence of an attack by a mob such as that to which their employees were subjected on May 31, several companies in the upper Potomac region are preparing to institute legal action. Employees of the **Brair Mining Co., Allegheny Coal Co., Piedmont & Georges Creek Co.**, and the **West Virginia Pulp & Paper Co.** were set upon and attacked while on their way to work near Piedmont and Luke. The day after the attack operators held a conference with a view to taking the necessary steps to bring those who participated in the attack to account, inasmuch as many members of the mob are known. The West Virginia Pulp & Paper Co. does not mine coal for commercial purposes, but to keep its large pulp and paper plant in fuel.

Phil Williams, general manager of the Randolph Colliery Co., with headquarters at Elkins, has returned from an extended Eastern business trip, Mrs. Williams and their son accompanying him.

Spates Brady, of Elkins, president of the Mable Coal Co., Brady Coal Co., and other concerns, with headquarters at Elkins, has returned from a visit to his plant in the Upper Potomac.

The Seneca Coal Co., with a plant on the Baltimore & Ohio near Philippi in Barbour County, has resumed operations, after a shutdown lasting from late in 1920.

The Beelick Knob Coal Co., of Cleveland, has been granted permission by the Secretary of State of West Virginia to do business in this state.

BRITISH COLUMBIA

In the Crow's Nest Pass field the strike is still under way and there is no prospect of an early settlement. If anything, the employers and employees are further apart than ever. The output from this district for May therefore was negligible. On Vancouver Island lack of demand has enabled the mines to work only part time.

Vancouver Island May Production

Mine.	Tons.
Western Fuel Corp., Nanaimo.....	35,840
Canadian Collieries (D) Ltd.,	
Comox	26,299
Extension	16,229
South Wellington	6,193
Granby Cons. M. S. & P. Co.....	19,458
Nanoose Wellington Collieries.....	4,860
Old Wellington Colliery.....	574
Total	109,453

WASHINGTON, D. C.

Although it decided a large number of coal cases during its term just closed, the Supreme Court did not reach several other coal cases and these will be on the docket for argument when the court reconvenes in October. The cases pending are: **Corona Coal Co.** vs. the Southern Ry., from the District Court for the Northern District of Alabama. **Hillsboro Coal Co.** vs. the U. S. District Attorney, from the District Court for the Southern District of Illinois. Colonial Beach Co. vs. the **Quemahoning Coal Co.**, from the Circuit Court of Appeals, Fourth Circuit. **Porto Rico Coal Co.** vs. W. H. Edwards, collector, from the District Court for the Southern District of New York.

In a House debate, Representative Huddleston, Alabama, opposed the purchase by the government of the Cape Cod Canal, as recently recommended by the House Interstate Commerce Committee. He said although the promoters of the canal said it would save 10c. a ton on coal, the project had failed as a commercial enterprise, and the government should not take it over.

Traffic News

The Illinois Coal Traffic Bureau has been authorized by the I. C. C. to intervene in the complaint of the **West Kentucky Coal Bureau,** which involves rates on coal from mines on the L. & N. in western Kentucky to points in the North and Northwest.

The Indianapolis Chamber of Commerce has been permitted to intervene in the complaint of the **Indiana State Chamber of Commerce,** which involves the rates on bituminous coal from Ohio District No. 8 and Inner Crescent Groups to Terre Haute and other Indiana points.

The commission has denied without prejudice the application of the C. & O., to dismiss the complaint of the **Kanawha Black Band Coal Co.,** which relates to rates on coal from mines of the coal company on the Kanawha Central to various points.

Substantial reductions in freight rates on coke from Sunnyside, Utah, to Silby, Cal., have been announced by the **Western Pacific R.R.** The reduction brings the rate from $8.75 to $6. Sunnyside mines which are owned by the Utah Fuel Co., have been important suppliers to the industrial concerns of California, but the high freight rates of late have enabled foreign competition to prove formidable competitors.

The Lens Creek Coal Co., the **Left Fork Coal Co.,** and the **Halstead Coal Co.,** Kanawha County, W. Va., have filed a comp aint with the Public Service Commission of West Virginia against the West Virginia & Southern R. R. In the complaint, it is charged that the railroad company established a rate for freight and passengers, and established rules and regulations governing same, that are excessive, unreasonable and burdensome on complainants; and that defendant company filed with the Public Service Commission a list of rates, rules and regulations for freight and passenger service, Nov. 6, 1920, which is an excessive, unjust and unreasonable rate, and the rules and regulations therein as to minimum and maximum weights and capacity for carload shipments, and other regulations therein contained, are unjust, unreasonable and excessive, and also said list is insufficient in that it does ont include the rates on explosives and other commodities shipped over its rails.

The Tampa Coal Co.'s complaint relating to rates on coal from points in Alabama to Tampa, Fla., because of increases applied under General Order No. 28, has been dismissed, on request of the coal company. Like action has been taken in the complaint of the Central Cypress Co., relating to rates on coal from points in Kentucky and Alabama to Centralia, Fla., and in the complaint of the Central Iron & Steel Co., relating to rates on bituminous coal from mines in West Virginia to Harrisburg, Pa., during Federal control.

A short section of the abandoned Chicago & Indiana Coal R.R. between Brazil, Ind., and West Union, Ind., has been purchased by the Cincinnati, Indianapolis & Western R.R., formerly known as the Cincinnati Hamilton & Dayton.

In the complaint of the **Fairfield Lumber & Coal Co.,** the I. C. C. decides that the rates on coal from Bankhead to Fairfield, Ala., and from Dora and Carbon Hill to Pratt City, Ala., during Federal control were not unreasonable.

In the complaint of the **Fox Paper Co.,** the I. C. C. has decided that the rates on coal from Seelyville and Big Vein, Ind., to Rialto and Crescentville, Ohio, are unreasonable.

Association Activities

Central Pennsylvania Coal Producers' Association and Central Coal Association

Both the Central Pennsylvania Coal Producers' Association and the Central Coal Association held their annual meetings in Altoona early in June. Officers were elected and action was taken with reference to price regulations in accordance with the request of Secretary Hoover.

The Producers' association met first and took up the request of Hoover that the district appoint a committee to confer with him on a price agreement between operators as individuals and the secretary. A tentative committee composed of H. J. Meehan of Johnstown, G. Dawson Coleman and Charles O'Neill, had been appointed by the board of directors previously. The association added the names of Allen Dodson of South Bethlehem and D. T. Price of Johnstown to this committee. They will go to Washington later to confer with Mr. Hoover.

The association then elected the following as members of the board of directors: T. H. Watkins, New York; R. R. Summerville, Winburne; Woodland Deringer, Spangler; Fred B. Kerr, Clearfield; W. R. Craig, Clearfield; H. J. Meenan, Johnstown; J. S. Sommerville, Robertsdale; M. J. Bracken, Johnstown; Rembrandt Peale and Charles A. Owen, New York; G. Dawson Coleman, Philadelphia; D. T. Price, Johnstown; G. Webb Shillingford, Clearfield; I. A. Boucher, Beaverdale; W. S. Blaisdell, Punxsutawney; James H. Allport, Barnesboro; Thomas V. Gould, Brisbin; James B. Neale, Minersville; J. William Wetter, Philipsburg; S. T. Brown, Indiana, and C. Law Watkins, Cresson.

The board organized by electing the following officers: President, C. Law Watkins; vice-president, R. S. Sommerville; chairman of the board, G. Dawson Coleman; secretary, Charles O'Neill; statistician, W. A. Jones; general counsel, A. M. Liveright, of Clearfield.

The Central Coal Association, which is composed of union operators of the district and which deals with the labor situation, held its annual meeting at the close of the meeting of the Producers' association. President G. Webb Shillingford, in his annual address, said that he does not anticipate that a settlement of the strike will be effected before Sept. 1, and he declared that the new scale must be based upon the economic and competitive conditions affecting central Pennsylvania exclusively.

The association elected the following executive committee: Woodland Deringer, Spangler; C. Law Watkins, Cresson; Charles A. Owen, New York; John B. Neale, Minersville; R. H. Sommerville, Winburne; S. T. Brown, Indiana; T. H. Watkins, New York; H. J. Meehan, Johnstown; J. S. Sommerville, Robertsdale; Fred B. Kerr, Clearfield; G. Webb Shillingford, Clearfield; I. A. Bucher, Beaverdale; J. William Wetter, Philipsburg; James H. Allport, Barnesboro; Thomas V. Gould, Brisbin.

The board afterward organized by electing the following officers: President, G. Webb Shillingford; vice-president, S. T. Brown; secretary, Charles O'Neill; statistician, W. A. Jones.

Publications Received

The following-named publications, which have recently been issued, are obtainable from the Bureau of Mines, Washington, D. C.

Serial 2343, Bibliography of articles relating to the preservation of mine timber.

Serial 2345, Relation of accidents and disease to the coal mining industry.

Serial 2349, Fatalities at coal mines in March, 1922.

Serial 2353, Explosives used in March, 1922.

Third Annual Report on the Mineral Resources of Alberta, 1921. By John A. Allan, University of Alberta, Edmonton. Pp. 72; 6 x 10 in.; illustrated. This report deals with the geology of the Drumheller coal field and is accompanied by a geological map in six colors, profile sections, stratigraphic sections, sections of the coal seams in each of the mines and photographs showing geological and topographical details.

Complete Uniform Accounting System for Retail Coal Merchants. National Retail Coal Merchants Association, South Penn Square, Philadelphia, Pa. Pp. 24; 6 x 9 in. This gives a very comprehensive system for keeping track of all the phases that apply to retail coal accounting.

Obituary

J. Newton Lambert, president of the Lambert Coal & Coke Co., Indianapolis, died recently at his home after an illness of several months. He was born in Warren County, Ohio. He came to Indianapolis eighteen years ago, associating with his son, C. L. Lambert and Rice W. Lambert, a grandson, in the business which bears his name.

Francis J. Rocks, aged 57, died early in June at the Uniontown Hospital following an operation. Mr. Rocks at the time of his death was president of the Nicholson Coal Co., and the Ainsley Coal Co. He became prominent in the trade as organizer and president of the Sunshine Coal & Coke Co.

W. G. Block, Muscatine, Ia., business man and president of the W. G. Block Coal Co., died at his home there recently, following a brief illness. Mr. Block was 73 years old and had lived in Muscatine practically his entire life. The concern of which he was the head has a number of branch offices, one being located in Davenport.

Richard Davis, widely known in western Pennsylvania as a mining engineer, died early this month in Pittsburgh at the home of his son.

Coming Meetings

National Safety Council. Eleventh annual Safety Congress at Detroit, Mich., Aug. 28 to Sept. 1. Executive secretary, W. H. Cameron, North Michigan Ave, Chicago, Ill.

American Society for Testing Materials will hold its twenty-fifth annual meeting June 26 to July 1, 1922, at Atlantic City, N. J., with headquarters at the Chalfonte-Haddon Hall Hotel. Assistant treasurer, J. K. Rittenhouse, Engineers' Club Bldg., Philadelphia, Pa.

Mine Inspectors' Institute of the United States of America will hold its annual meeting July 11, 12 and 13 at Chicago, Ill. Secretary, J. W. Paul, 4800 Forbes St., Pittsburgh, Pa. Announcement regarding headquarters will be made later.

Coal and Industrial Exposition under the auspices of the Huntington Chamber of Commerce will be held Sept. 18-23 in the Chamber of Commerce Bldg., Huntington, W. Va. **The West Virginia-Kentucky Association of Mine, Mechanical and Electrical Engineers** will again hold its annual meeting in the same building during the exposition.

National Exposition of Chemical Industries will hold its eighth national exposition at the Grand Central Palace, New York City, Sept. 11-16. Manager, Charles F. Roth, Grand Central Palace, New York City.